

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Rules Governing the Use of Distributed Transmission System Technologies)	MB Docket No. 20-74
)	
Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard)	GN Docket No. 16-142
)	

REPORT AND ORDER

Adopted: January 13, 2021

Released: January 19, 2021

By the Commission: Chairman Pai and Commissioner Carr issuing separate statements; Commissioners Rosenworcel and Starks approving in part, dissenting in part, and issuing separate statements.

I. INTRODUCTION

1. Today, we adopt a technical modification to the Commission’s rules governing the use of a distributed transmission system (DTS), or single frequency network (SFN), by a broadcast television station.¹ Consistent with our goal of addressing technical issues that may impede the adoption of DTS technology,² we conclude that by modestly easing limitations on DTS transmitters and providing additional clarity in our rules, we can help unlock the potential of DTS at this crucial time when many stations are considering migrating to the next generation broadcast television standard (ATSC 3.0).³ As the record in this proceeding demonstrates, affording broadcasters greater flexibility in the placement of DTS transmitters can allow them to enhance signal capabilities and fill coverage gaps, improve indoor and mobile reception, and increase spectrum efficiency by reducing the need for television translator stations operating on separate channels.⁴

2. Specifically, we update the current restriction that prohibits DTS signals from spilling over beyond a station’s authorized service area by more than a “minimal amount.”⁵ As described below, we replace the existing, and imprecise, “minimal amount” standard with a clearer, service-based approach

¹ See 47 CFR § 73.626. For the purposes of broadcast television, the term single frequency network (SFN) is synonymous with the term DTS. See *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142, Notice of Proposed Rulemaking, 32 FCC Rcd 1670, 1697, para. 61 (2017) (*Next Gen TV NPRM*); *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 9930, 9987, para. 115, n.343 (2017) (*Next Gen TV Order*) (explaining that SFNs are “a technique that broadcasters use to transmit signals on the same frequency from multiple antennas in a local geographic area where it is not practical to serve the entire area with a single antenna”). DTS also has been referred to as distributed transmission technologies (DTT) and distributed transmitters (DTx). *Digital Television Distributed Transmission System Technologies*, MB Docket No. 05-312, Report and Order, 23 FCC Rcd 16731, 16734, para. 4 (2008) (*2008 DTS Order*).

² *Rules Governing the Use of Distributed Transmission System Technologies, Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, MB Docket No. 20-74, GN Docket No. 16-142, Notice of Proposed Rulemaking, 35 FCC Rcd 3330, 3331, para. 2 (2020) (NPRM).

³ *Id.* at 3330-31, para. 2.

⁴ See *id.* at 3330-32, paras. 1, 4.

⁵ See 47 CFR § 73.626(f)(2).

that allows broadcasters greater flexibility in locating DTS transmitters, so long as, for UHF stations, the 41 dBu F(50,50) contour for each DTS transmitter does not exceed the reference station's 41 dBu F(50,50) contour.⁶ Consistent with our current approach, DTS transmissions will not be entitled to interference protection beyond the station's authorized service area. Our decision to replace the current, subjective spillover standard with a bright-line rule that both expands and clarifies the permissible range of spillover will not only promote DTS use by facilitating more efficient and more economical siting of DTS transmitters, but it also will establish a clearly defined limit that will promote regulatory certainty.

3. We find that the approach we adopt today improves upon the proposed rule set forth in the underlying Notice of Proposed Rulemaking (NPRM).⁷ In that NPRM, we sought comment on a proposed modification submitted in a joint petition for rulemaking (Petition) by America's Public Television Stations (APTS) and the National Association of Broadcasters (NAB) (collectively, Petitioners).⁸ As explained below, our adopted approach will allow broadcasters to improve coverage in their service areas, without causing more spillover than necessary to promote DTS deployment. In addition, we remove the requirement that Class A, LPTV, and television translator stations must apply for DTS facilities on an experimental basis, and we add a contour-based limit on DTS spillover by such stations that is similar to what we adopt today for full power stations, but modified slightly to account for technical differences between low power and full power services.⁹

II. BACKGROUND

4. Traditionally, a broadcast television station transmits its signal from a single elevated transmission site central to the service area, resulting in a stronger signal available near the transmitter and a weaker signal as the distance from the transmitter increases.¹⁰ Non-uniform terrain or morphological features also can weaken signals, regardless of distance from the transmitter.¹¹ One way for a station to augment its signal strength is to provide fill-in service using one or more separately licensed secondary transmission sites that operate on a different radiofrequency (RF) channel than the main facility, i.e., a television translator.¹² By contrast, a DTS network employs two or more transmission sites located within a station's service area,¹³ each using the same RF channel and synchronized to manage self-interference.¹⁴ Because it operates on only one frequency, DTS offers an

⁶ A 41 dBu F(50,50) contour refers to a boundary at which a signal is predicted to exceed 41 dBu at 50% of locations 50% of the time. We provide corresponding dBu values for F(50,50) limiting contours for Low and High VHF stations in the revised Table of Distances included in Appendix A of this Report and Order (Order). Those values are 28 dBu for Low VHF and 36 dBu for High VHF.

⁷ See NPRM, 35 FCC Rcd at 3337-38, para. 14.

⁸ Joint Petition for Rulemaking of America's Public Television Stations and the National Association of Broadcasters, GN Docket No. 16-142 (filed Oct. 3, 2019) (Petition).

⁹ Specifically, because low power stations do not have antenna height limits, we cannot easily replicate a Table of Distances, which is calculated using a station's hypothetically maximized antenna height, for low power stations. Instead, similar to full power stations, we subject Class A, LPTV, and television translator stations using DTS to the limitation that: (1) each DTS transmitter must be located within the station's authorized F(50,90) contour, and (2) the F(50,50) contour for each DTS transmitter must be fully contained within the station's F(50,50) contour (as opposed to an authorized service area drawn according to a Table of Distances). See *infra* Section III.B.

¹⁰ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60; Petition at 3.

¹¹ See, e.g., *2008 DTS Order*, 23 FCC Rcd at 16732, paras. 1-2; Petition at 3.

¹² *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60; see also Petition at 3-4.

¹³ *2008 DTS Order*, 23 FCC Rcd at 16734, para. 4.

¹⁴ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60. Through synchronization of the transmitted signal, DTV receivers treat the multiple signals as reflections or "ghosts" and use "adaptive equalizer" circuitry to cancel and combine them to produce a single signal. *2008 DTS Order*, 23 FCC Rcd at 16734, para. 4.

alternative to traditional full power television transmission, which may use secondary translators that operate on additional frequencies.

5. *Current DTS Rules.* The Commission first recognized the potential uses and benefits of DTS technologies more than a decade ago when the transition from analog to digital television (DTV) brought with it the ability to transmit multiple television signals on the same channel without causing harmful interference, thus making DTS feasible for television for the first time. In the *2008 DTS Order*, the Commission stated that DTS could allow stations to reach more viewers in their coverage areas, to distribute more uniform and higher-level signals near the edges of their coverage areas, to improve indoor reception and reception on mobile devices, to overcome tower height and placement restrictions, to increase their spectrum efficiency by using the same channel for all operations, to enhance their ability to compete with multichannel video programming distributors, and to reach viewers that lost service as a result of the digital transition.¹⁵ In anticipation of these benefits, the Commission adopted rules permitting full power DTV stations to transmit using multiple, lower power DTS transmitter sites operating on the same frequency.¹⁶

6. In crafting these rules, the Commission defined a DTS station's maximum authorized service area to be an area "comparable to that which the DTV station could be authorized to serve with a single transmitter."¹⁷ To determine the boundaries of a DTS station's maximum service area under this "Comparable Area Approach," the Commission established a "Table of Distances,"¹⁸ which it derived from the hypothetical maximum service area that a DTV station would be allowed to apply for under the Commission's rules (i.e., using the maximum antenna height and power permitted for the station's single-transmitter site).¹⁹ The maximum service area defined by the Table of Distances is centered around the station's reference facility.²⁰ Among other things, the Commission's rules require that each DTS transmitter must be located within either the reference station's Table of Distances area²¹ or the reference station's authorized service area.²² In addition, each DTS transmitter's noise-limited service contour (NLSC) must be contained within either the reference station's Table of Distances area or the reference station's authorized service area, except where an extension of coverage beyond the station's authorized

¹⁵ See *2008 DTS Order*, 23 FCC Rcd at 16734, 16738-40, paras. 6, 14.

¹⁶ See *id.* at 16737-38, paras. 10, 13.

¹⁷ *Id.* at 16741-42, para. 17.

¹⁸ *Id.* at 16746-47, paras. 26-27; see also 47 CFR § 73.626(c) (describing by channel and zone "a station's maximum service area that can be obtained in applying for a DTS authorization").

¹⁹ *2008 DTS Order*, 23 FCC Rcd at 16741-42, para. 17, n.67. The distance in the table is "hypothetical" because it assumes approval of the maximized facilities. *Id.* Stations, however, still must apply for facilities to serve such a maximized coverage area and must obtain Commission approval. *Id.* In addition, stations must obtain Federal Aviation Administration and state and local government approvals as may be necessary for such facilities. *Id.*

²⁰ *2008 DTS Order*, 23 FCC Rcd at 16748-49, para. 29; see also 47 CFR § 73.626(c)(2). Based on a station's location and band (Low VHF, High VHF, or UHF), the Table of Distances reflects a predicted noise-limited service contour (NLSC) for a given station's non-DTS, single-transmitter facility (i.e., the reference facility). Specifically, the table provides the distance for the radius of a circle to be drawn around a station's "reference point," i.e., a geographic point specific to each station that was defined during the DTV transition process.

²¹ *2008 DTS Order*, 23 FCC Rcd at 16750, para. 32; see also 47 CFR § 73.626(f).

²² *2008 DTS Order*, 23 FCC Rcd at 16750, para. 32; see also 47 CFR § 73.626(b) (defining a station's "authorized service area" as "the area within its predicted noise-limited service contour determined using the facilities authorized for the station in a license or construction permit for non-DTS, single-transmitter-location operation"). The Commission explained that, in the vast majority of cases, a circle drawn according to the Table of Distances would equal or exceed a station's non-DTS, single-transmitter authorized service area, but the DTS rules provide for those exceptional circumstances in which that is not the case (e.g., in areas where irregular terrain causes a station's service area to be distorted). *2008 DTS Order*, 23 FCC Rcd at 16747-51, paras. 27-33.

service area is of a “minimal amount” and necessary to ensure that the combined coverage from all of its DTS transmitters covers all of the station’s authorized service area.²³ In adopting this “Comparable Area Approach,” the Commission rejected proposals for an “Expanded Area Approach,” which would have permitted DTS stations to expand coverage beyond their single-transmitter service areas (e.g., to cover a larger area, up to an entire DMA).²⁴ One of the Commission’s concerns was that permitting broadcasters to reach viewers beyond their authorized service areas could undermine the Commission’s localism goals by distracting them from the primary responsibility of providing programming responsive to the needs and interests of their community of license.²⁵

7. In authorizing DTS operations, the Commission afforded primary regulatory status to DTS transmitters of a full power station within the area the full power station is authorized to serve.²⁶ The current rules therefore protect such DTS transmitters, within their authorized service areas, from interference from secondary licensees, such as low power television (LPTV) and television translator stations, and from unlicensed operations in television white spaces.²⁷ The Commission also approved the use of DTS on an experimental basis by a single-license digital Class A, LPTV, and television translator station to provide service within its authorized service area, i.e., operating a reference facility and one or more transmitters using a single Class A or LPTV license in the manner permitted for full power television stations.²⁸

8. *Next Gen TV (ATSC 3.0)*. In November 2017, the Commission adopted a Report and Order authorizing broadcast television stations to use the ATSC 3.0 transmission standard on a voluntary, market-driven basis while they continued to deliver current-generation DTV broadcast service to their viewers using the ATSC 1.0 standard (*Next Gen TV Order*).²⁹ In the *Next Gen TV Order*, the Commission concluded that the existing rules authorizing DTS stations generally were adequate to authorize the operation of an ATSC 3.0 SFN and that the record did not support changes to the authorized

²³ *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33; *see also* 47 CFR § 73.626(f)(2). The coverage for each DTS transmitter (i.e., its NLSC) is determined based on the F(50,90) field strength given in the Table of Distances (e.g., 41 dBu for UHF stations), calculated in accordance with section 73.625(b). *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33; *see also* 47 CFR § 73.626(d). The combined coverage of a DTS station is the logical union of the coverage of all DTS transmitters. *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33.

²⁴ *2008 DTS Order*, 23 FCC Rcd at 16743-46, paras. 20-25.

²⁵ *Id.*

²⁶ *Id.* at 16740-41, para. 15 (concluding that “primary status within a station’s authorized service area is essential for stations to implement a successful DTS network and obtain the benefits offered by DTS techniques”); *see also* 47 CFR § 73.626(e) (defining the population to be protected from interference for a DTS station as “the population within the station’s combined coverage contour, excluding the population in areas that are outside both the DTV station’s authorized service area and the Table of Distances area” and stating that “[o]nly population that is predicted to receive service...from at least one individual DTS transmitter will be considered”).

²⁷ Television white spaces refer to locations where portions of the VHF and UHF TV bands are not being used by TV broadcasters or associated services. *See Unlicensed White Space Device Operations in the Television Bands*, ET Docket Number 20-36, Report and Order, FCC 20-156, paras. 3-4 (Oct. 28, 2020).

²⁸ *2008 DTS Order*, 23 FCC Rcd at 16760-61, paras. 52-54. In addition, the rules allow licensees of multiple digital Class A, LPTV, and/or television translator stations to operate on a non-experimental basis through interconnected single frequency DTS networks, i.e., to operate a network of stations co-channel using their multiple licenses. *Id.* at 16761-64, paras. 55-59.

²⁹ *Next Gen TV Order*, 32 FCC Rcd at 9931, 9987, paras. 1, 115. ATSC 3.0 refers to a next-generation broadcast television transmission standard developed as the world’s first IP-based broadcast transmission platform. ATSC 3.0 merges the capabilities of over-the-air broadcasting with the broadband viewing and information delivery methods of the Internet, using the same six-megahertz channels presently allocated for DTV broadcast service. *Id.* at 9931, para. 1.

service areas for DTS stations at that time.³⁰ The Commission further stated that it would monitor the deployment of ATSC 3.0 in the marketplace and consider changes to the DTS rules in the future, if appropriate.³¹ The Commission also noted that a station interested in pursuing a change to its DTS service area may file for a waiver of the DTS rules pursuant to the Commission's general waiver standard.³²

9. *Petition for Rulemaking.* Petitioners contend that the ability of ATSC 3.0 broadcasters to use DTS is limited by the restriction that DTS signals may spill over by only a "minimal amount" beyond a station's authorized service area.³³ In their Petition, filed October 3, 2019, they ask the Commission to amend section 73.626 of the Commission's rules to permit television stations more flexibility in the placement of their DTS transmitters, particularly near the edges of a station's coverage area.³⁴ Petitioners do not seek the placement of DTS transmitters beyond a station's authorized service area.³⁵ Rather, they propose that what they refer to as the DTS transmitter's "interference contour," which would not be permitted to exceed that of the reference facility, would determine how close a DTS transmitter could be placed to the edge of a station's authorized service area.³⁶ On October 11, 2019, the Media Bureau issued a public notice (Public Notice) seeking comment on the Petition.³⁷ Although full power television broadcasters supported the Petition, other commenters expressed concerns, including that the requested rule change would create interference and displacement issues for secondary licensees and diminish opportunities for white space operations. In response, Petitioners asserted that their proposal was tailored to minimize the impact on LPTV and television translator stations and that adopting their proposed rule change would enhance spectrum efficiency to the benefit of white space operations.³⁸

³⁰ *Id.* at 9988, para. 118. The Commission also instituted a requirement that all DTS transmitters under a single license follow the same broadcast television transmission standard (i.e., no mixing of ATSC 1.0 and ATSC 3.0) and declined to adopt a synchronization standard for ATSC 3.0, i.e., a specific technical standard to be used for the synchronization of multiple signals received from different transmitters at different times. *Id.* at 9987, 9988-89, paras. 115, 119-20.

³¹ *Id.* at 9988, para. 118.

³² *Id.* at 9988, para. 118, n.356.

³³ See Petition at 2, 4.

³⁴ *Id.* at 2-11; see 47 CFR § 73.626.

³⁵ Petitioners' Reply to Public Notice at 2.

³⁶ Petitioners request that, for UHF stations, the Commission permit a DTS transmitter's NLSC, which for UHF stations is a 41 dBu F(50,90) contour, to exceed the reference facility's NLSC, so long as the DTS transmitter's 36 dBu F(50,10) "interference" contour does not exceed the reference facility's 36 dBu F(50,10) contour. Petition at 8. Petitioners state that they selected this value to avoid interference with Class A and LPTV operations, i.e., the "interference" contour value is 36 dBu because the service contour field strength of Class A and LPTV stations is 51 dBu and the nominal desired-to-undesired ratio necessary to avoid interference is 15 dB (51 - 15 = 36 dBu). Petitioners' proposal also applies the 15 dBu desired-to-undesired ratio to the NLSC value for Low-VHF and High-VHF channels, resulting in the contour values in their proposed Table of Distances. *Id.* at 8, Attach. A. The desired-to-undesired ratio is a measure of the strength of the broadcast signal for a particular channel (i.e., the desired signal) compared with the strength of undesired broadcast signals in the same channel (i.e., other, undesired signals from nearby facilities).

³⁷ *Media Bureau Seeks Comment on Joint Petition for Rulemaking of America's Public Television Stations and the National Association of Broadcasters Seeking to Amend Section 73.626 of the Commission's Rules Relating to Distributed Transmission Systems*, GN Docket No. 16-142, Public Notice, 34 FCC Rcd 9443 (MB 2019) (Public Notice). The Bureau set comment and reply comment deadlines of November 12, 2019, and November 27, 2019, respectively.

³⁸ Petitioners' Reply to Public Notice at 3-6.

10. *NPRM*. The Commission's subsequent NPRM, released April 1, 2020, sought public comment on the proposed rule changes advocated by Petitioners and on the various arguments that commenters raised in response to the Public Notice. The NPRM sought comment on whether any change to the DTS rules is necessary or appropriate at this time, or whether relaxing the current spillover restriction would be premature given the lack of DTS deployment to date.³⁹ The Commission asked whether it should permit more than a "minimal amount" of DTS spillover beyond a station's authorized service area, how to treat DTS signals beyond a station's current service areas if such spillover is allowed, and whether any rule changes adopted in this proceeding for full power stations should be applied also to Class A and/or LPTV stations.⁴⁰ The NPRM also sought comment on the potential impact of the proposed rule changes on the Commission's policy goal of promoting localism and its other policy reasons for limiting DTS spillover.⁴¹ In addition, the Commission asked how other spectrum users, including LPTV and translator stations, wireless microphones, and white space devices, could be affected by such rule changes and whether there are steps it could and should take to mitigate such impacts.⁴² The proponents of the proposed rule changes in the NPRM include various broadcasters and companies involved in the development of ATSC 3.0 applications and technologies.⁴³ Parties expressing concern or opposition include other users of the broadcast spectrum, such as LPTV and television translator stations, entities involved in the development and use of white spaces, non-commercial FM stations, and wireless microphone manufacturers.⁴⁴

III. DISCUSSION

A. DTS Spillover Contour

11. Today, we update our DTS rules to give television station licensees additional flexibility and greater certainty in the placement of DTS transmitters by increasing the amount by which DTS transmissions are permitted to spill over beyond a station's authorized service contour. Although its permitted area for DTS spillover will increase, a station's area of interference protection will not expand under our rule change. Specifically, such spillover will be subject to a bright-line limitation that, for UHF stations, the 41 dBu F(50,50) contour for each DTS transmitter must remain fully within the 41 dBu F(50,50) contour for the overall reference facility (for Low VHF and High VHF stations, the

³⁹ NRPM, 35 FCC Rcd at 3336-37, paras. 11-12.

⁴⁰ *Id.* at 3334-40, paras. 11-39.

⁴¹ *Id.* at 3336-37, paras. 18-22.

⁴² *Id.* at 3343-47, paras. 27-36.

⁴³ The following entities filed comments and/or replies in support of the NPRM proposal. *See* Petitioners' Comments and Reply; BitPath Comments and Reply; Cox Media Group (CMG) Comments; E.W. Scripps Company (Scripps) Comments; Gray Television, Inc. (Gray) Comments; Meredith Corporation (Meredith) Comments; Merrill Weiss Group, LLC (MWG) Comments and Reply; ONE Media 3.0, LLC (ONE Media) Comments and Reply; One Ministries, Inc. (One Ministries) Express Comments; Pearl TV Comments; Public Media Group (PMG) Comments; Smith and Fisher, LLC (Smith and Fisher) Comments and Reply; Spectrum Evolution, Inc. (SEI) Comments; TEGNA Inc. (TEGNA) Comments.

⁴⁴ The following entities filed comments and/or replies expressing some concern with and/or opposition to the NPRM proposal. *See* ARK Multicasting, Inc. (ARK) Comments and Reply; HC2 Broadcasting Holdings Inc. (HC2 Broadcasting) Reply; Hammett & Edison, Inc. (Hammett & Edison) Comments; Joshua J. Schroeder Comments; Microsoft Corporation (Microsoft) Comments and Reply; National Public Radio, Inc. (NPR) Comments and Reply; National Translator Association (NTA) Comments; NCTA – The Internet and Television Association (NCTA) Comments; New America's Open Technology Institute and Public Knowledge (OTI/PK) Comments and Reply; PMCM TV, LLC (PMCM TV) Comments and Reply; Sennheiser Electronic Corporation Reply; Shure Incorporated Reply; T Z Sawyer Technical Consultants (TZSTC) Comments; WatchTV, Inc. (WatchTV) Comments.

corresponding dBu values will be 28 dBu and 36 dBu, respectively).⁴⁵ We conclude that allowing full power television stations this greater flexibility in locating DTS transmitters and affording greater clarity as to the amount of spillover permitted will promote regulatory certainty and serve the public interest. In particular, relaxing and clarifying the amount of DTS spillover permitted at the fringe of a full power station's authorized service contour will improve the station's ability to provide a stronger and more uniform signal to viewers located at the edges of its service area and in places where terrain hampers coverage. We agree with proponents that the Commission's current imprecise spillover restriction could inhibit DTS deployment. We expect that the approach we adopt today will provide substantial flexibility and certainty to licensees, which were principal objectives of the NPRM proposal, without causing more risk of disruption to other spectrum users than necessary to achieve these goals.

12. As discussed below, the initial proposal in the NPRM failed to account for the additive effect of multiple DTS transmissions and thus underestimated the potential interference impact of the proposal. The bright-line approach we adopt remedies that technical omission and provides broadcasters ample leeway to improve coverage and locate transmitters, with less interference risk to other spectrum users. Further, we expect that the additional flexibility the new rule offers will make the use of DTS more practical as part of ATSC 3.0 deployments and thereby facilitate the realization of many anticipated consumer benefits that are possible with ATSC 3.0, such as improved audio and video quality, mobile viewing capabilities, geo-targeting of emergency alerts, and advanced data services supported by broadband connectivity.⁴⁶ Indeed, easing the DTS spillover restriction will help both ATSC 1.0 and ATSC 3.0 broadcasters deliver improved services, including ancillary and supplementary services like Broadcast Internet, to more of their viewers.⁴⁷

13. *Timely Action Required.* Although the Commission's current rules permit both ATSC 1.0 and ATSC 3.0 broadcasters to deploy DTS, to date few broadcast stations have opted to employ this technology, despite the potential benefits to such operations.⁴⁸ In petitioning for a rule change, Petitioners

⁴⁵ Specifically, as provided in the revised Table of Distances included in Appendix A of this Order, under our revised rule, the 28 dBu F(50,50) contour of each DTS transmitter for a Low VHF station must remain fully within the 28 dBu F(50,50) contour for the overall reference facility, and the 36 dBu F(50,50) contour of each DTS transmitter for a High VHF station must remain fully within the 36 dBu F(50,50) contour for the overall reference facility. In addition, for each band in the Table of Distances, we calculate a smaller interfering field strength that, when it is combined with the assumed reference interfering signal using the root-sum-square (RSS) methodology, would not increase the interference potential of the DTS network as compared to the interference predicted by a single-transmitter station located at the reference point.

⁴⁶ See *Next Gen TV Order*, 32 FCC Rcd at 9931, 9933-34, paras. 1, 4; but see TZSTC Comments at 4 (calling broadcasters' pursuit of a DTS rule change "a thinly veiled attempt to increase the service area of a facility under the guise of a speedier rollout of ATSC 3.0").

⁴⁷ See *Promoting Broadcast Internet Innovation through ATSC 3.0*, MB Docket No. 20-145, Declaratory Ruling and Notice of Proposed Rulemaking, 35 FCC Rcd 5916, 5916-17, para. 2 (2020) (coining the term "Broadcast Internet" to refer to "the universe of potential uses of broadcast spectrum capacity for new and innovative services beyond traditional over-the-air video") (*Broadcast Internet Declaratory Ruling and NPRM*); see also BitPath Comments at 1-3; MWG Comments at 39; ONE Media Comments at 7-8 and Reply at 3; Pearl TV Comments at 7-9. A couple commenters suggest that broadcasters' primary intent in seeking a DTS rule change may be providing Broadcast Internet services instead of achieving the purpose of the DTS rules to improve coverage and reach remote viewers. Microsoft Comments at 3-4, 10 and Reply at 2-4, 4-7, 9-11; OTI/PK Comments at 8-9 (suggesting that the Commission require that a DTS spillover signal be used for delivering broadcasting services and not for leasing spectrum for a non-broadcast use).

⁴⁸ *2008 DTS Order*, 23 FCC Rcd at 16737-38, paras. 10, 13; *Next Gen TV Order*, 32 FCC Rcd at 9988, para. 118; NPRM, 35 FCC Rcd at 3341, para. 23; see also Pearl TV Comments at 3-4 (claiming that there are few DTS networks currently because DTS with ATSC 1.0 is prohibitively expensive); Gray Comments at 2-6 (arguing that the "minimal amount" restriction on DTS transmissions makes it more cost-effective to use television translators to fill in coverage gaps).

contend that revising the permitted DTS spillover allowance at this stage of ATSC 3.0 deployment would be an effective means of encouraging DTS use because DTS can be used more efficiently and economically with the ATSC 3.0 standard than is possible with ATSC 1.0.⁴⁹ Numerous commenters agree and urge the Commission to act quickly to revise the spillover rule so that broadcasters planning to deploy ATSC 3.0 do not lose the opportunity to incorporate DTS into their network designs.⁵⁰ We are persuaded that the time is right to take action, and that a revised rule will promote DTS use and foster the accrual of the long-recognized benefits of such operation. We disagree with those commenters that assert it is premature to change the rule before we know how the ATSC 3.0 marketplace will develop.⁵¹ First, the DTS rules apply equally to ATSC 1.0 and ATSC 3.0 broadcasters, and so ATSC 1.0 broadcasters also will benefit from our revised approach.⁵² Second, the deployment of ATSC 3.0 infrastructure is well under way⁵³ and immediate action will encourage ATSC 3.0 broadcasters still in their planning stages to consider using DTS as a means to serve their hard-to-reach viewers or to enhance service in their coverage areas.

14. *Update of Rule.* The rule change proposed in the NPRM would have substantially expanded the amount of DTS spillover permitted outside the boundaries of a station's authorized service area. Specifically, the proposed change would have permitted spillover to the extent necessary either to "achieve a practical design" or, as articulated in the current rule, to ensure that "combined coverage from all of the DTS transmitters covers all of the applicant's authorized service area."⁵⁴ Instead of the current rule's "minimal amount" limitation, the extent of spillover permitted would have been subject to the

⁴⁹ See Petition at 4-7; see also Pearl TV Comments at 3-4 (contending that the simplified design of ATSC 3.0 will make DTS more cost-effective).

⁵⁰ See, e.g., Petitioners' Comments at 3-5 and Reply at 2, 7-8; CMG Comments at 1; Scripps Comments at 1; Gray Comments at 7-9; Meredith Comments at 1-2; MWG Comments at 1, 5; ONE Media Comments at 4-5; Pearl TV Comments at 1-2; SEI Comments at 1; TEGNA Comments at 1-2; WatchTV Comments at 1-2; BitPath Reply at 2-3.

⁵¹ See, e.g., Microsoft Comments at 4-5 and Reply at 4-7; NTA Comments at 4-5; OTI/PK Comments at 3, 5-8 and Reply at 1-5; see also Joshua J. Schroeder Comments at 1-3 (rejecting the proposition that facilitating DTS would affect ATSC 3.0 deployment). Microsoft and OTI/PK argue that the Commission's waiver process is sufficient for now, especially given the current lack of ATSC 3.0 buildout. Microsoft Comments at 3; OTI/PK Reply at 1-5; see also TZSTC Comments at 5-6 (suggesting that a "factual demonstration of need," such as a lack of service in the proposed spillover area, be required before a broadcaster is allowed to expand its coverage area beyond a minimal amount).

⁵² See TZSTC Comments at 5-6 (urging that any DTS rule change apply also to ATSC 1.0 broadcasters); but see PMCM TV Comments at 10 (asserting that the NPRM proposal should not be extended to ATSC 1.0). Our current DTS rules apply to both ATSC 1.0 and ATSC 3.0 and we see no reason not to maintain that parity. Accordingly, we apply our rule changes, and their associated benefits, to both ATSC 1.0 and ATSC 3.0.

⁵³ See *Broadcast Internet Declaratory Ruling and NPRM*, 35 FCC Rcd at 5916-18, paras. 2-5 (describing the "ongoing" nature of the transition to ATSC 3.0); Letter from Gerard J. Waldron, Counsel to Pearl TV, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 20-74, at 1 (Oct. 16, 2020) (stating that "the number of markets committed to transitioning [to ATSC 3.0] has risen to 61"); ATSC, *Rolling Out Broadcasting's Next Generation* (Oct. 9, 2020), <https://www.atsc.org/news/rolling-out-broadcastings-next-generation/> (stating that ATSC 3.0 service is available in 13 markets); Scripps Comments at 1 (reporting its ATSC 3.0 launch in Las Vegas, with plans to roll out ATSC 3.0 in Nashville, Tampa, and Detroit).

⁵⁴ Petition at Attach. A. By contrast, under the current DTS rules, each transmitter's coverage (i.e., its NLSC) must be fully contained within the reference facility's service area, with only a "minimal amount" of spillover permitted as necessary to ensure that the "combined coverage from all of the DTS transmitters covers all of the applicant's authorized service area." 47 CFR § 73.626(f)(1)-(2). Petitioners ask that the Commission modify this restriction to allow a DTS transmitter's NLSC to extend beyond the reference facility's NLSC and to no longer limit such spillover to a "minimal amount."

limitation that (for UHF stations) the DTS transmitter's 36 dBu F(50, 10) "interference" contour not exceed the reference facility's 36 dBu F(50, 10) contour.⁵⁵

15. We find that the technical analysis Petitioners submitted in support of the initial proposal⁵⁶ substantially underestimates the interference potential of DTS networks. In short, the interference protection under the proposal is designed around a single transmitter and does not account for the additive effects of signals from multiple DTS transmitter sites. These additive effects would create interference risk from a UHF station beyond its 36 dBu F(50, 10) contour.⁵⁷ Given this situation, we find that the proposal cannot be adopted without changes. Specifically, Petitioners' proposal purports to be calibrated in such a way as to maintain the nominal desired-to-undesired ratio necessary to avoid interference to Class A and LPTV stations.⁵⁸ If, however, we do not account for the additive effects of signals from multiple DTS transmitter sites, this premise is no longer valid, and the potential for interference at a given distance would be greater than what is suggested by Petitioners. Therefore, we adopt a modified approach that achieves the principal objectives articulated in the record – which include providing broadcasters with additional flexibility to serve hard-to-reach viewers and bringing the benefits of DTS and ATSC 3.0 to additional consumers – while resulting in less spillover than the initial proposal. Thus, as compared to the NPRM proposal, the rule change we adopt today poses less of an interference risk to licensed and unlicensed operations in areas beyond a full power station's authorized service contour.⁵⁹

16. Our revised rule replaces the "minimal amount" test in section 73.626(f)(2) with an

⁵⁵ Petition at 8-9. Petitioners calculate other dBu values for proposed interference contours for Low and High VHF stations in their proposed revisions to the Table of Distances. In addition, Petitioners proposed no change to the permissible location of DTS transmitters (i.e., they would continue to be located within the reference facility's authorized service area) and proposed no changes to a station's authorized antenna height and authorized effective radiated power. *See* Petitioners' Reply to Public Notice at 2-3.

⁵⁶ *See* Petition at Attach. A.

⁵⁷ The initial proposal set an F(50,10) contour based on the threshold distance at which a single transmitter would be able to cause interference to a Class A station. In the case of UHF, that distance would be a 36 dBu F(50,10) contour. The proposal then would allow multiple transmitters to overlap a 36 dBu interfering signal at that distance. In the simplest case, two 36 dBu signals would combine at that point to have the interfering effect of a 39 dBu signal. Although subsequent steps of the facility engineering include an RSS analysis of transmitter sites based on OET-69 that combines the signals from multiple stations, that stage of the analysis limits protection to primary services and does not consider effects to other spectrum users from an expanded area of interference as compared to the interference predicted by a single-transmitter station located at the reference point.

⁵⁸ As noted above, Petitioners chose the "interference" contour value of 36 dBu because the service contour field strength of Class A and LPTV stations is 51 dBu and the nominal desired-to-undesired ratio necessary to avoid interference is 15 dB (51 - 15 = 36 dBu).

⁵⁹ We disagree with Microsoft that more time is needed to assess the impact of the rules adopted in this Order. *See, e.g.,* Letter from Paula Boyd, Senior Director, Government and Regulatory Affairs, Microsoft, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 20-74, GN Docket No. 16-142, at 1-2 (Nov. 25, 2020). The NPRM sought comment on how other spectrum users, including LPTV and translator stations, wireless microphones, and white space devices, would be impacted by Petitioners' 36 dBu F(50,10) proposal and on whether "another contour [] could or should be used instead." NPRM, 35 FCC Rcd at 3339, 3343-47, paras. 16, 27-36. The NPRM also sought comment on Petitioners' "necessary to achieve a practical design" standard, including whether it could be adequately defined and potential alternatives to it. *Id.* at 3338, paras. 14-15. Responding to those requests for comment, there is a robust record on the issues of whether and how increased DTS flexibility, including Petitioners' proposal, would risk disruption to other spectrum users and whether Petitioners' "necessary to achieve a practical design" standard is impractical. Our decision here responds to the concerns expressed in the record by adopting an alternative approach that achieves the goal advanced in the NPRM of providing flexibility in DTS deployments and is consistent with the original purposes of our DTS rules, while at the same time offering broadcasters more clarity and certainty than the "necessary to achieve a practical design" standard and also reducing the risk of disruption to other spectrum users. *Id.* at 3334, 3339-41, paras. 7, 18-22.

approach that utilizes a contour based on the service field threshold.⁶⁰ Specifically, we will permit television stations additional flexibility to deploy DTS transmitters so long as the transmitters continue to be sited within the station's authorized service contour⁶¹ and, for UHF stations, the 41 dBu F(50,50) contour for each individual DTS transmitter is fully contained within the reference station's 41 dBu F(50,50) contour.⁶² Consistent with the Table of Distances used in our current rule, our revised Table of Distances includes separate, corresponding dBu values for Low VHF and High VHF stations, which are 28 dBu and 36 dBu, respectively.⁶³ These changes will afford stations greater ability to site DTS transmitters near the edges of their authorized service contours and will provide a clear, bright-line standard for determining the permissible level of spillover beyond an authorized service contour.⁶⁴ Siting DTS transmitters near the edges of their service areas will allow stations to reach more viewers in areas they are authorized to serve and to distribute more uniform and higher-level signals throughout those areas, the latter of which is prerequisite to the provision of certain advanced services under ATSC 3.0.⁶⁵ With increased flexibility in the siting of DTS transmitters, we also anticipate that, in many instances, stations using DTS will be able to cover a comparable area with fewer DTS transmitters than would be

⁶⁰ To the extent there are existing DTS networks operating with Commission approval under the "minimal amount" standard today that would not be entirely compliant with our modified spillover limits, such DTS networks may continue to operate pursuant to their current authorization. However, pending applications will be granted only if they comply with our revised rule.

⁶¹ See 47 CFR § 73.626(f)(6).

⁶² A 41 dBu F(50,50) contour refers to a boundary at which a signal is predicted to exceed 41 dBu at 50% of locations 50% of the time. Today, DTS transmitter service contours are not permitted to exceed the 41 dBu F(50,90) contour of the reference facility except by a minimal amount to enable coverage within the authorized service area. Because, by definition, a 41 dBu F(50,90) contour requires the predicted signal strength to be exceeded 90% of the time, it encompasses an area where a stronger signal could be expected to be received, i.e., an area smaller than that encompassed by a 41 dBu F(50,50) contour. Additionally, the distance from the 41 dBu F(50,90) contour to the 41 dBu F(50,50) contour is directly related to the radius of the F(50,90) contour, such that a lower power/lower antenna transmitter will have a smaller difference between the two. That effect makes it clear that a DTS node at a certain ERP and HAAT may be located at the edge of a station's authorized service area. By replacing the current 41 dBu F(50,90) limiting contour with a 41 dBu F(50,50) limiting contour, we give broadcasters a certain room for spillover from DTS transmitters and thereby enable the placement of transmitters in locations that are not practical today, particularly locations closer to the edge of a station's authorized service area. We also provide dBu values for limiting contours for Low and High VHF stations in the revised Table of Distances included in Appendix A of this Order.

⁶³ See Appendix A. The dBu values used correspond to the values used in the Commission's rules defining the NLSC for Low VHF, High VHF, and UHF stations. See 47 CFR 73.622(e) (providing that a station's NLSC is the area in which the predicted F(50,90) field strength of the station's signal exceeds 28 dBu for Low VHF, 36 dBu for High VHF, and 41 dBu for UHF).

⁶⁴ We also clarify that the largest station alternative, an alternative to the Table of Distances by which stations may seek to use DTS to match the geographic coverage of the largest station in their market, remains unchanged and available to stations looking to employ DTS as part of an ATSC 3.0 deployment. Our action today does not alter the ability of stations to make use of this alternative. We further clarify that, in determining the geographic area to be matched, DTS spillover is not counted in calculating the coverage of the largest station in a market. See *2008 DTS Order*, 23 FCC Rcd at 16751-53, paras. 35-36 (giving DTS stations the same ability as single-transmitter stations to seek an increased coverage area by utilizing the largest station alternative); see also MWG Comments at 38-39 (asking the Commission to reaffirm the application of the largest station alternative to DTS if the NPRM proposal were adopted); PMCM TV Comments at 5-8 (questioning whether the "match the largest contour in the market rule" would apply to contours artificially enlarged by DTS extensions"). Moreover, we find that PMCM TV's concern that a UHF station can use the largest station alternative to match the coverage of a VHF station goes beyond the issue of application of the largest station alternative rule to DTS and therefore exceeds the scope of this proceeding. See PMCM TV Comments at 7-8; see also *2008 DTS Order*, 23 FCC Rcd at 16751-52, para. 35 (noting the intention of the largest station alternative rule to "address disparities between VHF and UHF stations").

⁶⁵ See ONE Media Comments at 2-3; MWG Comments at 2-3; Pearl TV Comments at 7.

necessary under the current rule, thereby making DTS deployments more practical and cost effective.⁶⁶

17. The F(50,50) curves are one of two sets of curves within Part 73 of our rules—the other being the F(50,10) curves.⁶⁷ In turn, the F(50,90) curve values are derived from a calculation comparing the values from the F(50,50) and F(50,10) charts.⁶⁸ Historically, the F(50,50) curves were used for predicting service area for analog television stations.⁶⁹ Currently, the F(50,10) curves are used for predicting interfering signals,⁷⁰ and the F(50,90) curves are used to represent digital television service areas within which most people can expect to view a signal nearly all of the time.⁷¹ While the F(50,50) curves are not presently used in the context of digital television service, we find that it is useful and appropriate to employ them in this instance in determining the limits on spillover by DTS transmitters beyond a station's authorized service contour. The F(50,50) curves, in combination with the signal level thresholds in 73.622(e), can be considered as representative of an area in which most of the people could view a DTV signal a substantial amount of the time. Accordingly, we find that it makes sense to limit spillover service to this area, an area that likely already experiences some level of reception from the existing non-DTS facility and thus may already have viewership of the station. Regarding the protection of any improved signal and potential interference caused as result of this permitted spillover, we emphasize that neither the definition of the DTS protected area in 73.626(e), nor the interference analysis for DTS facilities (pursuant to sections 73.626(f)(5), 47 CFR § 73.623(c)(3), and OET Bulletin No. 69) will change.⁷²

18. We therefore update the Table of Distances in section 73.626(c) with an additional set of reference distances calculated using the 41 dBu F(50,50) contours.⁷³ These reference distances will establish the limit of permissible spillover, and section 73.626(f)(2) will be modified to state that the 41 dBu F(50,50) service contour for each individual DTS transmitter must be contained fully within that reference distance. In addition, for each band in the Table of Distances, we calculate a smaller interfering field strength that, when its RSS⁷⁴ is combined with the assumed reference interfering signal, does not

⁶⁶ See, e.g., Gray Comments at 4-6; Letter from John Hane, President, BitPath, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 20-74, at 1 (Sept. 25, 2020) (BitPath *Ex Parte* Letter).

⁶⁷ See 47 CFR § 73.699.

⁶⁸ See 47 CFR § 73.625(b) (describing F(50,90) curves).

⁶⁹ See 47 CFR § 73.683.

⁷⁰ See, e.g., 47 CFR § 73.613(f)(1).

⁷¹ See 47 CFR § 73.622(e).

⁷² The use of contours in limiting the placement of DTS transmitters can also be seen as an extension of the rules in 73.625(a) for determining single-transmitter placement. See 47 CFR 73.625(a) (stating that the “DTV transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, the following minimum F(50,90) field strength in dB above one uV/m will be provided over the entire principal community to be served”).

⁷³ In addition, we delegate to the Media Bureau the authority to update the relevant FCC forms for full power stations, including Schedules A and B of FCC Form 2100, to conform with the rule changes we adopt today.

⁷⁴ For purposes of compliance, the Commission uses the RSS method of calculating interference from multiple DTS transmitters, rather than adding up the aggregate interference from each individual DTS transmitter, commonly referred to as a “direct summation” approach. See *2008 DTS Order*, 23 FCC Rcd at 16758, para. 47. This means that the combined field strength level at a given location is equal to the square root of the sum of the squared field strengths from each transmitter in the DTS network at that location. *Id.* We believe RSS continues to be an appropriate method to aggregate interference because we need some method that accounts for the multiple sources of interference, including to ATSC 1.0 “victim” receivers, which perceive the signals as multiple sources of white noise. See Letter from Glenn S. Richards, Pillsbury Winthrop Shaw Pittman LLP, Counsel for ONE Media, to Marlene H. Dortch, Secretary, FCC (Oct. 21, 2020) at 2 (ONE Media Oct. 21, 2020 *Ex Parte* Letter) (questioning the use of an RSS methodology “in an ATSC 3.0 world that relies on OFDM modulation”).

increase the interference potential of the DTS network as compared to the interference predicted by a single-transmitter station located at the reference point. To illustrate, in the UHF band with a reference interference of 36 dBu, an additional signal of 26.6 dBu would RSS combine to an equivalent of 36.47 dBu, which rounds back down to 36 dBu. Accordingly, the approach we adopt today requires that the 26.6 dBu F(50,10) contour of each DTS node for a UHF station be contained completely within the reference 36 dBu F(50,10) distance.⁷⁵

19. *Benefits of Modified Approach.* The modified approach we adopt today has several policy advantages over Petitioners' submission.⁷⁶ First, our approach is based on service contours instead of interference contours, which typically are used in spacing broadcast radio stations and no longer are used in television. Therefore, we find that our service-based approach—focusing on the provision of service to those viewers a station is already authorized to serve—is more consistent with the intent underlying section 73.626(f)(2) that spillover allowances meet the requirement in section 73.626(f)(1) to cover the entire reference service area.⁷⁷ Second, as mentioned previously, it achieves our goal of improving stations' ability to fill coverage gaps and to deliver a strong and uniform signal throughout their authorized service areas, thereby supporting the provision of advanced services under ATSC 3.0.⁷⁸ Third, the risk of disruption to other existing and future spectrum users is lower than it would have been under the NPRM proposal. In particular, our approach allows nearly the same signal levels for DTS nodes located within the core of a station's authorized service area as the NPRM proposal, but it reduces

⁷⁵ Corresponding values are provided for Low VHF and High VHF stations in Appendix A. In addition, the F(50,10) node-interfering contour of any DTS transmitter, aside from one located at the reference point, may not extend beyond the F(50,10) reference-interfering contour of its reference facility, and the F(50,10) reference-interfering contour of a facility at the reference point may not extend beyond the F(50,10) reference-interfering contour of its reference facility.

⁷⁶ Although some commenters submit alternative ways in which we could revise our DTS rules, many of these are variations on the NPRM proposal, and we find that they lack the level of flexibility, clarity, or both, provided by the revised rule we adopt today. *See, e.g.*, PMCM TV Comments at 4 (suggesting that the Commission limit spillover to "no more than 1% of the total coverage area of the station"); TZSTC Comments at 6 (suggesting that the Commission require a "factual demonstration of need" before permitting more than *de minimis* spillover); NTA Comments at 4 (recommending that the Commission allow DTS applicants to use small low power translator stations to fill in "critical but marginal areas"). For instance, we find PMCM TV's 1% suggestion arbitrary and too restrictive; TZSTC's proposal is vague and subjective; and NTA's recommendation strays from our focus in this proceeding on improving our existing DTS rules. By contrast, Petitioners' submission (which we sought comment on in the NPRM) was the most complete proposal in the record. Accordingly, we evaluate the NPRM proposal as the primary alternative in the record to the rule we adopt today.

⁷⁷ Under the current rule, which focuses on replicating a station's hypothetically maximized single-transmitter service area, a minimal amount of spillover has been permitted, with the understanding that such outward spillover is necessary and incidental to improving service within the station's authorized service area. *See* 47 CFR 73.626(f)(1)-(2) (providing that spillover must be both "of a minimal amount" and "necessary" to ensure that "[t]he combined coverage from all of the DTS transmitters covers all of the applicant's authorized service area"). Under the NPRM proposal, substantial outward spillover would have been permitted, subject to a limiting "interference contour," without stipulating that such spillover was necessary to provide service within the authorized service area. *See, e.g.*, Petition at Attach. A (providing that spillover would be permitted if necessary either to "achieve a practical design" or, as articulated in the current rule, to ensure that "combined coverage from all of the DTS transmitters covers all of the applicant's authorized service area"); Smith and Fisher Comments at 2-8 and Reply at 2-8 (demonstrating the ability of a station, under the NPRM proposal, to use DTS primarily to extend service to a community outside its authorized service area and with minimal accompanying gains within). In contrast to the NPRM proposal, the rule we adopt today, by providing flexibility to improve service within a station's authorized area, but providing a bright-line boundary on outward spillover, and one based on a station's service contour, is more closely aligned with the objective of our current rule to improve service to those viewers a station is already authorized to serve.

⁷⁸ *See supra* paras. 11-12, 16.

the allowable signals for nodes located at the extreme edge of the service area, and hence the potential spillover resulting from such nodes. This reduced interference risk is accomplished while also offering a substantial increase in flexibility and certainty for broadcasters to implement DTS networks.⁷⁹

20. In addition, our approach has practical benefits. First, unlike the initial proposal, the modified approach we adopt accounts for the additive effects of multiple DTS transmitters and so produces more accurate, realistic results. Second, our new rule will produce the clarity and certainty in the engineering review process that some commenters suggest is lacking under the “minimal amount” standard of the current rule.⁸⁰ It focuses on measurable, repeatable results that licensees and their consulting engineers can use to determine compliance in advance of application to the Commission. By replacing the “minimal amount” exception with a bright-line rule, our revised rule provides more regulatory certainty regarding the boundary of a station’s spillover area. The requirement that all DTS transmissions stay within a defined contour will enable better planning not only among broadcasters implementing DTS, but also among all other licensed and unlicensed spectrum users operating in or interested in operating in spillover areas. Third, our approach does not include the nebulous standard contemplated in connection with the initial proposal, which would have allowed spillover “where such extension of coverage beyond the station’s authorized service area is necessary to achieve a practical design.”⁸¹ A number of commenters warned that such a provision would require Commission staff to make burdensome and subjective assessments about the design practicability of a station’s DTS network, which could be impossible without access to sensitive cost and financial information.⁸² Our approach avoids that possibility. Rather, it is based on an objective standard that will promote consistency and efficiency. Moreover, our approach is no more complex from an engineering standpoint than the initial proposal advocated by Petitioners, and thus it imposes no higher burden on licensees to perform the required analysis than initially anticipated.⁸³

21. *Localism.* Furthermore, we find that the rule we adopt today is consistent with the service-based approach previously adopted by the Commission, which the Commission found was adequate to preserve and protect localism.⁸⁴ Several commenters in this proceeding cite fostering localism as an important goal for our DTS rules.⁸⁵ More so than the NPRM proposal, our modified rule

⁷⁹ See Letter from Jerald N. Fritz, Executive Vice President, Strategic and Legal Affairs, ONE Media, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 20-74, at 1 (Nov. 3, 2020) (supporting the adoption of a modest proposal).

⁸⁰ MWG Comments at 28-29, 41; *see also* Petitioners’ Comments at 4, 11; Gray Comments at 15; WatchTV Comments at 3 n.4.

⁸¹ NPRM, 35 FCC Rcd at 3338, 3351-52, para. 15, & App. A; *see also* Petition at Attach. A.

⁸² *See, e.g.*, Hammett & Edison Comments at 2-3; Microsoft Comments at 7, 11 and Reply at 12-15; OTI/PK Comments at 8-9; PMCM TV Comments at 2-3 and Reply at 1. We find that Microsoft’s proposed approach, which would retain the existing “minimal amount” standard coupled with a waiver process, fails to achieve the objectives of this proceeding. *See* Letter from Paula Boyd, Senior Director, Government and Regulatory Affairs, Microsoft, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 20-74, at 1 and Attach. (Jan. 7, 2021). Specifically, lacking a bright-line standard, the approach would not offer the same level of certainty to broadcasters and administrative efficiency as the rule we adopt today and would be more subjective, burdensome, and time-consuming for Commission staff to process. We also note that Microsoft rejected the broadcasters’ initial proposal, in part, based on similar considerations, i.e., that it contained a subjective standard that would be burdensome, subjective, and require access to sensitive cost and financial information.

⁸³ We direct the Media Bureau and the Office of Engineering and Technology to update TVStudy, the Commission’s software program used to evaluate television applications, in order to support the engineering analysis required under our revised approach.

⁸⁴ *See supra* note 25 and accompanying text.

⁸⁵ *See, e.g.*, PMCM TV Comments at 2; Pearl Comments at 5-7; Petitioners’ Comments at 5-7; ONE Media Comments at 7-8.

adheres to the Commission's position in 2008 that "DTS technology's core purpose should be to improve service to a DTV station's local community, both in increasing reception reliability to existing viewers and reaching local viewers now blocked because of terrain and other like impediments."⁸⁶ As noted above, the Commission determined that a DTS station's maximum authorized service area should be comparable to that which the DTV station could be authorized to serve with a single transmitter (the Comparable Area Approach).⁸⁷ A principal reason the Commission chose that approach was to preserve and protect localism, on the theory that permitting broadcasters to reach viewers beyond their authorized service areas could distract them from the primary responsibility of providing programming responsive to the needs and interests of their community of license.⁸⁸ We find that our adopted approach also will preserve and protect localism. We believe that it strikes an appropriate balance that enables a station to improve service at the edges of its service area, without allowing it to expand coverage to the point where it might shift attention away from its community of license.⁸⁹ Nevertheless, we can revisit this issue in the future if evidence suggests that our revised DTS rules are not protecting localism adequately.⁹⁰

22. In addition, we find that our modified proposal, which limits spillover, addresses commenters' concerns that the NPRM proposal would have allowed broadcasters to send their signals well beyond their licensed areas, thereby serving additional communities without competing in a Commission auction for that right.⁹¹ In 2008, the Commission declined to allow spillover to the edges of a station's DMA because it was concerned that such an approach "would subvert [its] current licensing rules by allowing a station to obtain the rights to serve a new community where a new station, including a low power station, might otherwise be licensed."⁹² We find that similar concerns expressed regarding the NPRM proposal are mitigated by our approach.⁹³ Specifically, given its more limited spillover allowance,

⁸⁶ 2008 DTS Order, 23 FCC Rcd at 16743-44, para. 20.

⁸⁷ See *supra* para. 6; see also 2008 DTS Order, 23 FCC Rcd at 16741-42, para. 17. In 2017, the Commission affirmed that approach and rejected requests to expand the area that a DTS network could cover. *Next Gen TV Order*, 32 FCC Rcd at 9988, para. 118.

⁸⁸ 2008 DTS Order, 23 FCC Rcd at 16742-46, paras. 18-25 (warning that "DTS must not be used to undermine localism and that a DTS service area should not shift a station's primary focus from its community of license"); see also 47 CFR § 73.626(f)(4) (requiring that coverage from one or more DTS transmitters must provide principal community coverage). A number of commenters in this proceeding assert that facilitating DTS use would promote localism by enabling broadcasters to make better use of ATSC 3.0 technologies that allow them to improve coverage and to deliver tailored local content to more viewers. See, e.g., Petitioners' Comments at 5-7; Pearl TV Comments at 5-6; ONE Media Comments at 7-8 and Reply at 1-2; Meredith Comments at 1-2; Scripps Comments at 1; TEGNA Comments at 1; WatchTV Comments at 2-3; One Ministries Apr. 20, 2020 Express Comment at 1.

⁸⁹ Notably, a real-world example provided in the record by Smith and Fisher in support of the initial proposal illustrates our concerns with that proposal. The Smith and Fisher diagrams, initial and corrected, show that, under the initial proposal, a station licensed to the Las Vegas, Nevada DMA could extend service to a new community in a neighboring DMA (Kingman, Arizona). See Smith and Fisher Comments at 2-8 and Reply at 2-8; see also BitPath *Ex Parte* Letter, Attach. at 14 (demonstrating spillover signals from DTS transmitters covering areas in adjacent DMAs under the NPRM proposal).

⁹⁰ See, e.g., BitPath Comments at 8 (asserting that the Commission should reconsider what constitutes localism today).

⁹¹ See, e.g., Microsoft Comments at 3-4, 10 and Reply at 2-7; OTI/PK Comments at 3, 5-8 and Reply at 1, 6-7, 9; PMCM TV Reply at 1-2.

⁹² 2008 DTS Order, 23 FCC Rcd at 16745-46, para. 24 & n.99.

⁹³ See, e.g., Microsoft Comments at 10 (expressing concern that "the Commission would be giving what amounts to free spectrum over a large area to a broadcaster" and that "some broadcasters may use this free spectrum to provide services that compete with companies that purchased spectrum at auction"); OTI/PK Reply at 5-6 (cautioning that the use of DTS spillover spectrum for Broadcast Internet services could distort market competition by allowing broadcasters to use "free TV spectrum that all other mobile service providers must typically acquire at auction").

which falls well short of the DMA coverage approach the Commission previously rejected, our approach does not raise serious concerns about whether broadcasters using DTS should bid for the modest spillover spectrum our approach would permit them to occupy—without interference protection—outside their authorized service areas.

23. *Impact on Other Spectrum Users.* While we adopt the approach set forth above to provide additional flexibility and certainty to broadcasters deploying DTS networks, we anticipate that our approach has the added benefit of reducing potential disruption to other spectrum users as compared to Petitioners' proposal. In the NPRM, the Commission sought comment on the potential impact of the initial proposal on Class A stations, LPTV stations, television translators, licensed and unlicensed wireless microphone users, NPR FM stations, and white space devices.⁹⁴ In response, a number of commenters urged the Commission either to reject the proposal, or at a minimum, ensure that those other types of spectrum users are protected from DTS interference in spillover areas.⁹⁵ Petitioners concede that, under the initial proposal, spillover signals likely would cause disruption to other spectrum users.⁹⁶ Although initially claiming that "interference to LPTV stations [would] occur in at most a handful of cases,"⁹⁷ Petitioners subsequently estimated that 330, or 13.8%, of the 2,392 existing LPTV stations likely would receive interference above a 2% threshold and that 5.3% to 11% of the 3,135 existing translators likely would be affected under their proposal.⁹⁸ They derived this revised prediction after Hammett & Edison, based on the initial information Petitioners provided, determined that the potential impact on LPTV stations under certain scenarios would be substantial and could affect, for example, nearly 40% of co-channel LPTV stations.⁹⁹ ONE Media, however, provided an analysis of Petitioners' interference study that concluded that only 1.4% of LPTV stations would be affected.¹⁰⁰ The wide variability in these

⁹⁴ NPRM, 35 FCC Rcd at 3343-47, paras. 27-36.

⁹⁵ See Microsoft Comments at 1, 5-6, 10 and Reply at 1-2 (arguing that DTS transmissions should be treated as Part 15 transmissions); OTI/PK Comments at 3, 5-8, 13-15 and Reply at 1, 5-9 (supporting Part 15 treatment of DTS transmissions); PMCM TV Comments at 8-9 and Reply at 1; TZSTC Comments at 5-6; ARK Comments at 1-4 and Reply at 2; HC2 Broadcasting Reply at 2-3; WatchTV Comments at 4-5; Hammett & Edison Comments at 2-3; NTA Comments at 1-4; NPR Comments at 2-6 and Reply at 1-5; SEI Comments at 1-3; Letter from John Simpson, Capitol Resources LLC, Consultant to ARK, to Marlene H. Dortch, Secretary, FCC, MB Docket Nos. 20-145 and 20-74, at 2 (Nov. 30, 2020) (seeking assurance that LPTV stations planning to use DTS themselves will not lose access to their authorized service areas due to "spillovers" from full power stations); Letter from Kathleen Burke and Harold Feld, Public Knowledge, and Michael Calabrese, Open Technology Institute at New America, to Marlene H. Dortch, Secretary, FCC, MB Docket Nos. 20-145 and 20-74, at 1-2, 4 (Dec. 3, 2020) (expressing concern about a potential impact of a DTS rule change on the availability of white spaces). Petitioners maintain that no such additional interference protections are warranted. Petitioners' Comments at 7-11 and Reply at 2-5; *see also* BitPath Comments at 5-6 and Reply at 4-6; Gray Comments at 14-15.

⁹⁶ See Petitioners' Reply to Public Notice at 3-6.

⁹⁷ *Id.* at 4.

⁹⁸ Petitioners' Reply at 9-12; *see* Petitioners' Reply to Public Notice, Attach. A at 4 (noting the use of a 2% threshold because "that is the level considered as *de minimis* in interference studies between LPTV stations").

⁹⁹ Hammett & Edison Comments at 1-2. Engineering consultants Hammett & Edison claim that Petitioners' interference study failed to include pertinent information regarding the potential impact of their proposal on LPTV stations. They observe that Petitioners' interference findings refer to the percentage of all cases studied, not necessarily to the percentage of LPTV stations. Hammett & Edison state that the Commission incorrectly interpreted these findings in the NPRM as applicable only to LPTV stations, and in doing so, vastly understated the percentages of co-channel and adjacent-channel LPTV stations likely to be subject to interference above a 2% threshold under Petitioners' proposal. *Id.* In response, Petitioners agree that their findings refer to all studies performed, but they contend that the potential impact on LPTV stations is not likely to be as great as Hammett & Edison assume. Petitioners' Reply at 11-12.

¹⁰⁰ ONE Media Oct. 21, 2020 *Ex Parte* Letter at 1-2 (stating that Petitioners' study is based on a set of unrealistic assumptions and attaching an engineering study conducted by Smith and Fisher).

predictions reveals the difficulty in establishing a reliable basis for an interference study consistent with Petitioners' proposal. This difficulty reinforces our decision to take a more measured course of action at this time, one that will provide additional flexibility and certainty in the placement of DTS transmitters without posing the same risk of interference to LPTV stations that would have resulted under the initial proposal.

24. Moreover, although the collective impact of our revised rule on other spectrum users depends significantly on the number of stations that deploy DTS transmitters, the number, location, and relative power of those transmitters, and a host of other issues, the rule we adopt today permits less spillover than the initial proposal. We are confident therefore that the interference impact will be far less than it would have been with the initial proposal, and we expect that our revised rule, given the contour it applies, is a reasonable approach that will not have a significant impact on authorized secondary licensees or unduly limit entry of new secondary licensees.¹⁰¹ Likewise, we do not anticipate a significant impact on the availability of spectrum for white space operations or other unlicensed uses, such as wireless microphones.¹⁰²

25. We also decline to adopt suggestions that we use this proceeding to take up the issue of, or to alter, the current regulatory status (i.e., interference rights and obligations) of DTS stations or of any other existing or future users of broadcast spectrum. In response to the NPRM, commenters express disagreement over whether, and the extent to which, secondary and unlicensed users should be granted interference protection vis-à-vis DTS spillover.¹⁰³ Notably, the NPRM did not propose to afford interference protection to DTS signals in the spillover area, and we see no reason to grant any today.¹⁰⁴

¹⁰¹ As a result, we conclude that our action is consistent with congressional intent regarding the reimbursement of LPTV and translator services displaced as a result of the broadcast Incentive Auction. *See* NPRM, 35 FCC Rcd at 3344-45, para. 31 & n.114. Our action is also consistent with section 1452(b)(5) of the Middle-Class Tax Relief and Job Creation Act of 2012, which is a rule of statutory construction, not a limit on the Commission's authority. *See* 47 U.S.C. § 1452(b)(5) ("Nothing in [47 U.S.C. § 1452(b)] shall be construed to alter the spectrum usage rights of low power television stations."); *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Second Order on Reconsideration, 30 FCC Rcd 6746, 6778, para. 68 (2015); ARK Comments at 4-5.

¹⁰² We therefore disagree with assertions that the rule changes we adopt today will disrupt white space operations. *See, e.g.*, Letter from Thomas A. Schatz, President, Citizens Against Government Waste, to Chairman Ajit Pai and Commissioners, FCC, MB Docket No. 20-74, GN Docket No. 16-142, at 1-2 (Dec. 10, 2020); Letter from David Williams, President, Taxpayers Protection Alliance, et al., to Chairman Ajit Pai and Commissioners, FCC, MB Docket No. 20-74, GN Docket No. 16-142, at 1-2 (Dec. 10, 2020); Letter from Jeffrey Goldstein, et al., Voices for Innovation, to Chairman Ajit Pai and Commissioners, FCC, MB Docket No. 20-74, GN Docket No. 16-142, at 1 (Dec. 11, 2020); Letter from Teddy Bekele, Senior Vice President & Chief Technology Officer, Land O'Lakes, Inc., to Chairman Ajit Pai and Commissioners, FCC, MB Docket No. 20-74, GN Docket No. 16-142, at 1-2 (Dec. 16, 2020); Letter from Brian Scarpelli, Senior Global Policy Counsel, and Belen Crisp, Policy Associate, ACT | The App Association, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 20-36, MB Docket No. 20-74, WC Docket Nos. 11-10, 18-213, 19-195, 20-89, at 2 (Dec. 17, 2020).

¹⁰³ *See, e.g.*, Petitioners' Comments at 7-11 (asserting that the Commission should not expand the spectrum rights of secondary and unlicensed spectrum users in this proceeding); BitPath Comments at 5-7 (contending that the Commission should not limit DTS spillover to protect white space devices); ONE Media Comments at 5-6 (stating that white space devices should not be entitled to protection from broadcast stations); HC2 Broadcasting Reply at 2-4 (asserting that the Commission should not "elevate" unlicensed users over licensed ones); *but see* Microsoft Comments at 10 (asserting that DTS spillover should be "on par" with white space devices); WatchTV Comments at 4 (maintaining that DTS spillover signals should not have "primary status" over LPTV and television translator stations); SEI Comments at 1-2 (endorsing WatchTV's position that DTS spillover signals should have "equal priority" with LPTV stations and television translators).

¹⁰⁴ *See* NPRM, 35 FCC Rcd at 3343, para. 27; Petitioners' Reply at 5-7; *see also* Hammett & Edison Comments at 2-3 (agreeing with Petitioners that stations should not be entitled to interference protection in spillover areas); MWG Reply at 2-5 (stating that a broadcaster's area of interference protection would not have changed under the initial

(continued....)

As discussed above, the approach we adopt today is consistent with the intent of our DTS rules that any spillover should be incidental to, and in service of, improving coverage within a station's authorized service area, rather than intended to extend service to communities outside that area. We therefore decline suggestions by commenters to provide interference protection to DTS signals in areas beyond the authorized service area.¹⁰⁵ Thus, our interference protections, and the existing relative status of primary, secondary, and unlicensed users in the television spectrum, remain unchanged.¹⁰⁶ DTS signals will continue to receive no interference protection in spillover areas; nor are stations obligated to protect secondary and unlicensed users from interference in the spillover area. Accordingly, consistent with the tentative conclusion in the NPRM, the rule change we adopt today does not modify or enlarge the area within which a DTV station is protected from interference.

26. In addition, we deny NPR's request to provide additional protection to noncommercial and educational (NCE) FM stations by requiring full service emission mask filters in the construction and operation of DTS facilities for DTV Channel 6 stations, like those required for DTV channels 14 and 17.¹⁰⁷ To the extent that NPR is concerned about the potential for interference between NCE FM stations and newly permitted spillover outside a DTV Channel 6 station's authorized service area, the rule we adopt today allows for less spillover than the initial proposal, which should reduce the chances of such interference events occurring and thereby mitigate some of the concern NPR expresses with regard to the initial proposal. In addition, NPR does not provide evidence specific to DTS that current filter requirements are inadequate to protect NCE FM stations from DTS interference.¹⁰⁸

27. *Other Issues:* We conclude that no rule changes other than the ones specified herein are currently necessary to implement our revised approach.¹⁰⁹ Beyond the primary issue of revising the

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proposal); OTI/PK Reply at 1, 5-9 (opposing interference protection rights for DTS spillover transmissions); Letter from Patrick McFadden, Deputy General Counsel, NAB, to Marlene H. Dortch, Secretary, FCC, MB Docket Nos. 20-145, 20-74, and 15-146, at 2 (Nov. 20, 2020) (asserting that Petitioners do not seek changes to existing protection requirements). Microsoft and PMCM TV predict, however, that broadcasters will seek interference protection in the future for spillover signals. Microsoft Reply at 1-2, 15-18; PMCM TV Comments at 8-9. Such assertions about future actions by broadcasters are speculative and have no bearing on the actions taken by the Commission today. In addition, Microsoft contends that, in light of the fact that the Television White Spaces (TVWS) database already protects DTS transmissions that spill over beyond a station's authorized service area, the Commission should make "an affirmative statement that DTS receivers are not protected from harmful interference beyond the DTV station/DTS reference point's service area defined by its 41 dBu F(50,90) contour." Letter from Paula Boyd, Senior Director, Government and Regulatory Affairs, Microsoft, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 20-74, at 1 (Dec. 15, 2020). We find that the issues raised by Microsoft are outside the scope of this proceeding. However, we direct the Media Bureau and the Office of Engineering and Technology to work with relevant stakeholders to ensure that DTS operations and the TVWS database, respectively, are being implemented consistent with all applicable FCC rules and decisions.

¹⁰⁵ See, e.g., Gray Comments at 14-15; ONE Media Comments at 6.

¹⁰⁶ See NPRM, 35 FCC Rcd at 3343-44, paras. 27-29; 2008 DTS Order, 23 FCC Rcd at 16743-46, 16750-51, paras. 20-25, 33.

¹⁰⁷ NPR Comments at 2, 4-6 and Reply at 1-3; see also NPRM, 35 FCC Rcd at 3345-46, para. 34.

¹⁰⁸ See Petitioners' Comments at 11; MWG Reply at 6-7; see also NPRM, 35 FCC Rcd at 3345-46, para. 34 (observing that "at least some of NPR's concerns may relate to the use of DTV Channel 6, generally, rather than the use of DTS in particular").

¹⁰⁹ We note that the rule we adopt does not, in and of itself, do anything to change a station's carriage rights. Following our rule change, stations will continue to enjoy all the rights they have, or could pursue, today by increasing coverage through the use of a single-transmitter facility. See NCTA Comments at 1-3 (arguing that the proposed rule change is acceptable so long as it does not result in additional burdens on cable operators or allow broadcasters to gain carriage rights on cable systems in spillover areas beyond their authorized coverage areas); OTI/PK Reply at 8 (supporting NCTA's position that spillover signals should not confer more extensive must-carry
(continued....)

spillover rule to facilitate the siting of DTS transmitters, the NPRM also sought comment on issues related to the implementation of revised DTS rules.¹¹⁰ For example, the Commission asked whether it should revise its licensing process for DTS sites shared by multiple licensees, change any of its forms or licensing systems, impose additional power restrictions on DTS transmitters, include a certification requirement on DTS applications, or adjust its technical requirements.¹¹¹ Various commenters responded with suggestions, including proposed changes to the way in which DTS stations are licensed.¹¹² Given that we are making only modest, targeted modifications to the DTS rules today, we decline to make general changes to our implementation of the DTS rules suggested by commenters, some of which appear to be substantial and administratively complicated.¹¹³ We further find such proposed changes could be evaluated better after we see what kinds of networks broadcasters deploy in light of our action today and whether and how our processes could be improved to support that deployment. Thus, as we gain experience with this new rule, we will adjust our processes as necessary.

28. Finally, we do not require broadcasters switching to and using DTS to take any specific action with respect to their television translators.¹¹⁴ One of the benefits of DTS is the more efficient use of spectrum that can be achieved by using DTS transmitters instead of television translators because DTS transmitters broadcast on the same channel as the main transmitter.¹¹⁵ A few commenters suggest that a

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rights); *but see* One Ministries Express Reply at 1 (disagreeing with NCTA’s cable carriage position); PMCM TV Comments at 4-5 (implying that the NPRM proposal could raise cable carriage issues). NCTA specifically requests that “a station...not be permitted to base a market modification request...on any extended coverage beyond its authorized service made possible under the rule change proposed in the NPRM.” NCTA Comments at 3, n.9. Because full power stations have market-wide carriage rights, their expansion of coverage within their DMAs should not raise market modification issues. Moreover, there are several, nonexclusive statutory factors the Commission considers in deciding whether to grant or deny such market modification requests, of which the scope of a station’s signal is but one. *See* 47 U.S.C. §§ 534(h)(1)(C)(i)-(IV).

¹¹⁰ NPRM, 35 FCC Rcd at 3339, para. 17.

¹¹¹ *Id.*

¹¹² *See, e.g.*, ONE Media Comments at 9-11 and Reply at 1-2 (suggesting a two-tiered streamlined licensing process for DTS transmitters); PMG Comments at 9-10 (recommending a one-step license modification application for shared SFN sites and arguing that a single-stick ATSC 1.0 licensee should not be required to file construction permit and license applications to operate an ATSC 1.0 SFN facility before it files its ATSC 3.0 SFN license application); ARK Comments at 6-7 and Reply at 5 (arguing that the Commission should require either no application or a blanket application for the kinds of lower power LPTV DTS transmitters that will not increase signal strength beyond approved existing licensed contours); PMCM TV Comments at 4 (proposing that the power level of a DTV station should be limited to the power allowed to an LPTV or translator facility for the particular class of station); Gray Comments at 12-13 (asking the Commission to lift its existing freezes on community of license changes, channel substitutions, and maximization applications and to make it easier for VHF stations to move to a UHF channel by providing more flexibility in its loss analysis); One Ministries May 7, 2020 Express Comment at 1 (urging the Commission to lift the freeze on minor modifications for non-repacked full power television stations to ensure that applications filed to convert to DTS operation under any new rules can be processed concurrently for both repacked and non-repacked full power television stations).

¹¹³ For instance, ONE Media suggests the Commission should establish a new, two-tiered licensing protocol for DTS applications. ONE Media Comments at 9-11. Under this approach, the Commission would need to determine a power level benchmark, and for DTS transmitters falling below that benchmark, the Commission would forego the standard licensing process and instead require only a “database-type submission.” *Id.* at 10. ONE Media suggests that implementing this approach would require the Commission to create such a database, serve as the database administrator, and verify that stations certify they have “conducted an interference study for each node, and the network as a whole, to assure compliance with the Commission’s rules regarding interference to co-channel and adjacent-channel television facilities.” *Id.* at 10-11.

¹¹⁴ *See* NPRM, 35 FCC Rcd at 3342, para. 26.

¹¹⁵ 2008 DTS Order, 23 FCC Rcd at 16734, para. 6; *see also* Petitioners’ Comments at 7-9 and Reply at 2-3 (arguing (continued....))

full power broadcaster adding DTS facilities should be required to relinquish its translator channel, if it has one, to an LPTV station affected by DTS interference and to reimburse the LPTV station for the costs of moving to the relinquished channel or another channel.¹¹⁶ We find such a suggestion to be heavy-handed and unwarranted at this time, particularly given the uncertainty regarding the extent to which broadcasters will make use of DTS as a replacement for television translators.

B. Use of DTS by Low Power Stations

29. In addition to affording full power television stations greater flexibility and certainty in siting DTS transmitters, we also ease the way for Class A, LPTV, and television translator stations (low power stations) to pursue DTS operations. We eliminate the requirement that these stations must apply for DTS facilities on an experimental basis prior to operation. Rather, in order to allow low power stations to pursue DTS operations in a manner similar to full power stations, we adopt a rule with a contour-based limit defining acceptable DTS spillover, taking into account the technical differences between full power and low power services. Specifically, as discussed below, we will permit low power stations to employ DTS facilities so long as such facilities meet the following conditions: first, DTS transmitters must be located within the authorized F(50,90) contour for the station, and second, the F(50,50) contour of each DTS must be contained within the station's F(50,50) contour based on currently authorized technical parameters (as opposed to an authorized service area drawn according to a Table of Distances). In so doing, we give low power stations the same flexibility of a streamlined licensing process as we give full power stations.

30. Recognizing that circumstances may have changed since the Commission first considered DTS operations by low power stations, the NPRM sought comment on the use of DTS by these licensees.¹¹⁷ In the *2008 DTS Order*, the Commission had approved the use of DTS technologies on an experimental basis by a single low power station to provide service within its authorized service area, finding that there was not an adequate record at that time to resolve the technical issues for LPTV stations as they differ from full power television stations.¹¹⁸ The Commission further concluded at that time that it did not have “sufficient indication of widespread interest in DTS among individual low power stations;” that LPTV stations serve smaller geographic areas than full power stations, making the likelihood of needing DTS to provide service relatively low; and that Class A and LPTV stations, which were not subject to the 2009 DTV transition, did not have the same urgent need for DTS to provide post-transition service.¹¹⁹ The Commission indicated that it would revisit its decision if there were a “demonstrated interest in or need for DTS as an alternative for individual low power stations on a permanent basis.”¹²⁰

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that the conversion of translators to DTS transmitters will make more spectrum available for other uses like white space operations); Gray Comments at 13-14 (stating that the NPRM proposal would free up spectrum for other purposes by providing incentives for broadcasters to substitute DTS transmitters for translators); Pearl TV Comments at 7-9 (echoing the argument that DTS promotes spectrum efficiency by reducing the need for translators); Microsoft Comments at 5-6 (supporting ATSC 3.0 to the extent that DTS facilities replace translators and make more spectrum available for white space devices).

¹¹⁶ WatchTV Comments at 4-5; ARK Reply at 2-3; HC2 Broadcasting Reply at 4.

¹¹⁷ NPRM, 35 FCC Rcd at 3347, paras. 37-39.

¹¹⁸ *2008 DTS Order*, 23 FCC Rcd at 16760-61, paras. 53-54. Most notably, unlike full power television, the low power television service does not rely on a Table of Distances to define or restrict service, nor do the rules define a maximum height above average terrain (HAAT) for low power. In addition, the rules allow licensees of multiple digital Class A, LPTV, and/or television translator stations to operate on a non-experimental basis through interconnected single frequency DTS networks, i.e., to operate a network of stations co-channel using their multiple licenses. *Id.* at 16761-64, paras. 55-59.

¹¹⁹ *Id.* at 16761, para. 54.

¹²⁰ *Id.*

31. On balance and based on the record before us, we find that changes in the marketplace following the DTV transition, including the evolution of the ATSC 3.0 transmission standard, have made the use of DTS more attractive for low power stations today, despite their smaller service areas. With nearly all commenters that addressed this issue supporting a rule change, there is now “sufficient indication” of a “demonstrated interest”¹²¹ in DTS among Class A and LPTV stations and evidence that the ability to provide DTS service would improve their service.¹²² We agree with commenters that deployment of DTS by low power stations offers potential benefits to consumers, including by facilitating the deployment of ATSC 3.0 services.¹²³ In light of these changed circumstances, we eliminate the requirement that low power stations must apply for DTS facilities on an experimental basis and allow these stations to employ DTS facilities provided that such facilities comply with the contour-based limit defining acceptable DTS spillover we adopt herein.

32. In crafting an approach for low power stations, we note that there are some important differences between full power and low power stations that we must take into account. Most notably, as MWG highlights in its comments, the LPTV services do not rely currently on the Table of Distances, either with respect to service area distance or interference contour distance.¹²⁴ In part, this is because low power stations do not have antenna height limitations, making it difficult to readily establish a Table of Distances for them. In addition, the concept of the largest station in the market, which affords full power stations an additional metric by which they can establish authorized service, does not apply to low power stations. Accordingly, the Table of Distances and the largest station in the market constructs discussed above for full power DTS operations do not apply to these stations. Rather, we require that the DTS facilities of low power stations be contained within the station’s authorized F(50,90) and F(50,50) contours as follows. First, DTS transmitters must be located within the authorized F(50,90) contour for the station. Second, the F(50,50) contour of each DTS must be contained within the station’s F(50,50) contour. As discussed above, the F(50,50) curve can be considered as representative of an area in which most of the people could view a DTV signal a substantial amount of the time.¹²⁵ Accordingly, we find that it makes sense to limit spillover service to this area, an area that likely already experiences some level of reception from the existing non-DTS facility and thus may already have viewership of the station. In this way, we define the permissible spillover for the low power service and afford LPTV stations greater flexibility to more easily deploy DTS facilities.¹²⁶

¹²¹ ARK Comments at 5-7 (supporting granting LPTV stations regulatory parity with full power television stations as pertains to DTS deployment); Columbus Broadcasting Comments at 1 (requesting that Class A television stations be permitted to use DTS in the same manner as full power television stations); Gray Comments at 15-16 (supporting applying the existing DTS rules to Class A and LPTV stations); HC2 Broadcasting Reply at 3 (supporting granting LPTV stations regulatory parity with full power television stations as pertains to DTS deployment); One Ministries Apr. 15, 2020 Express Comments (supporting granting Class A and LPTV stations regulatory parity with full power television stations as pertains to DTS deployment). *But see* PMCM TV Reply at 2 (opposing applying the DTS rules to LPTVs, stating that doing so would be antithetical to the nature of LPTVs and would prevent independent LPTVs from applying to serve areas “usurped” by existing LPTVs).

¹²² *See 2008 DTS Order*, 23 FCC Rcd at 16760-61, para. 54.

¹²³ For example, ARK, a strategic partner of LPTV licensees in the deployment of ATSC 3.0, asserts that applying the DTS rules to LPTV stations would be beneficial to ARK and the public it serves, citing the potential benefits of “cellularizing broadcasting, particularly when it comes to broadcasting the Internet” and the cost-effectiveness of “using DTS in fairly small geographic areas today.” Specifically, ARK states that “the use of very low power DTS transmitters will play a very significant role in the addition of utility value and performance for ATSC 3.0 networks” and that, depending on the local topography, foliage and buildings, it intends to deploy DTS transmitters that are optimized for specific local conditions. ARK Comments at 4-5.

¹²⁴ MWG Reply at 11.

¹²⁵ *See supra* para. 17.

¹²⁶ MWG suggests that we could extend DTS to Class A licensees by using as a reference “whatever service area the
(continued....)

33. We note that shifting from authorizing LPTV DTS facilities on a case-by-case, experimental basis to licensing under a codified rule applicable to all low power stations will require a modification of a number of processes, including FCC forms, the Licensing and Management System (LMS), and engineering review applicable to low power stations.¹²⁷ Accordingly, we direct the Media Bureau and the Office of Engineering and Technology to take the practical steps necessary to implement the rule change we adopt today, including the modification of applicable forms (including Schedules C, D, E, and F of FCC Form 2100) and the revision of TVStudy. In the interim, we will continue to process DTS requests for LPTV and Class A stations on a case-by-case basis, filed as a request for Special Temporary Authority (STA), using the guidelines we establish today.

IV. PROCEDURAL MATTERS

34. *Final Regulatory Flexibility Analysis.* As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹²⁸ the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA) relating to this Order. The FRFA is set forth in Appendix B.

35. *Paperwork Reduction Analysis.* This document contains modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the PRA. OMB, the general public, and other Federal agencies will be invited to comment on the new or modified information collection requirements contained in this proceeding. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

36. In this present document, we have assessed the effects of our rule changes easing limitations on the placement of DTS transmitters by full power and low power television stations and find that these changes do not impose new burdens on businesses with fewer than 25 employees.

37. *Congressional Review Act.* The Commission has determined, and Administrator of the Office of Information and Regulatory Affairs, Office of Management and Budget, concurs, that this rule is “non-major” under the Congressional Review Act, 5 U.S.C. § 804(2). The Commission will send a copy of this Report & Order to Congress and the Government Accountability Office pursuant to 5 U.S.C. § 801(a)(1)(A).

38. *Additional Information.* For additional information on this proceeding, contact Ty Bream, Media Bureau, Industry Analysis Division, at Ty.Bream@fcc.gov or (202) 418-0644.

V. ORDERING CLAUSES

39. Accordingly, **IT IS ORDERED** that, pursuant to the authority found in sections 1, 4, 7,

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Class A station was able to obtain within the limits of 15 kW ERP and some maximum height to be included in a relevant rule.” MWG Reply at 11. We find that our approach is simpler and less arbitrary than MWG’s approach as MWG would have us select “some maximum height” to use in the reference calculation, a process that would require us to evaluate potential options and would invite criticism if not all parties are satisfied with the selected value.

¹²⁷ We deny, however, ARK’s request for the Commission to consider an approval process for DTS transmitters for LPTVs that would require either no application or a blanket application for lower power LPTV DTS transmitters that would not increase signal strength beyond approved existing licensed contours. ARK Reply at 5; ARK Comments at 6-7. We find that the elimination of the case-by-case process and our adoption of a streamlined licensing process for low power stations sufficiently addresses ARK’s objectives. In any event, we find that the costs of such a fundamental modification of the licensing of broadcast television stations outweighs the benefits given our actions today.

¹²⁸ *See* 5 U.S.C. § 604.

301, 302, 303, 307, 308, 309, 316, 319, 324, and 336 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 157, 301, 302, 303, 307, 308, 309, 316, 319, 324 and 336, this Order **IS ADOPTED**.

40. **IT IS FURTHER ORDERED** that, pursuant to the authority found in sections 1, 4, 7, 301, 302, 303, 307, 308, 309, 316, 319, 324, and 336 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 157, 301, 302, 303, 307, 308, 309, 316, 319, 324 and 336, the Commission's rules **ARE AMENDED** as set forth in Appendix A, effective thirty (30) days after publication of the text or a summary thereof in the Federal Register, except for those rules and requirements involving Paperwork Reduction Act burdens, which shall become effective on the effective date announced in the *Federal Register* notice announcing OMB approval.

41. **IT IS FURTHER ORDERED** that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, **SHALL SEND** a copy of this Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

42. **IT IS FURTHER ORDERED** that, pursuant to Section 801(a)(1)(A) of the Congressional Review Act, 5 U.S.C. § 801(a)(1)(A), the Commission **SHALL SEND** a copy of the Order to Congress and to the Government Accountability Office.

43. **IT IS FURTHER ORDERED** that, should no petitions for reconsideration or petitions for judicial review be timely filed, MB Docket No. 20-74 **SHALL BE TERMINATED** and its docket closed.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A
FINAL RULES

Part 73 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 73—RADIO BROADCAST SERVICES

1. The authority citation for Part 73 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 155, 301, 303, 307, 309, 310, 334, 336, and 339.

2. Amend section 73.626 by revising paragraphs (c) and (f) to read as follows:

§ 73.626 DTV Distributed Transmission Systems.

* * * * *

(c) *Table of Distances.* The following Table of Distances describes (by channel and zone) a station's maximum service area that can be obtained in applying for a DTS authorization and the maximum interference area that can be created by its facilities.

Channel	Zone	Service Field Strength	Distance from Reference Point		Reference Interference Field Strength	Distance from Reference Point F(50,10)	Node Interfering Field Strength F(50,10)
			F(50,90)	F(50,50)			
2-6	1	28 dBu	108 km	132 km	28 dBu	183 km	18.8 dBu
2-6	2 and 3	28 dBu	128 km	158 km	28 dBu	209 km	18.8 dBu
7-13	1	36 dBu	101 km	121 km	33 dBu	182 km	23.8 dBu
7-13	2 and 3	36 dBu	123 km	149 km	33 dBu	208 km	23.8 dBu
14-36	1, 2, and 3	41 dBu	103 km	142 km	36 dBu	246 km	26.8 dBu

(1) * * *

(2) * * *

* * * * *

(f) * * *

(2) Each DTS transmitter's coverage is contained within either the DTV station's Table of Distances area (pursuant to paragraph (c) of this section) or its authorized service area, except where such extension of coverage beyond the station's authorized service area meets the following criteria:

- (i) In no event shall the F(50,50) service contour of any DTS transmitter extend beyond that of its reference facility and;
- (ii) In no event shall the F(50,10) node-interfering contour of any DTS transmitter, aside from one located at the reference point, extend beyond the F(50,10) reference-interfering contour of its reference facility and;
- (iii) In no event shall the F(50,10) reference-interfering contour of a facility at the reference point extend beyond the F(50,10) reference-interfering contour of its reference facility.

* * * * *

3. In § 73.6023, add new paragraphs (a)-(g) to read as follows:

§ 73.6023. Distributed transmission systems.

(a) Station licensees may operate a commonly owned group of digital Class A stations with contiguous predicted DTV noise-limited contours (pursuant to § 73.622(e)) on a common television channel in a distributed transmission system.

(b) A Class A DTV station may be authorized to operate multiple synchronized transmitters on its assigned channel to provide service consistent with the requirements of this section. Such operation is called a distributed transmission system (DTS). Except as expressly provided in this section, Class A stations operating a DTS facility must comply with all rules applicable to Digital Class A single-transmitter stations.

(c) For purposes of compliance with this section, a digital Class A station's "authorized facility" is the facility authorized for the station in a license or construction permit for non-DTS, single-transmitter-location operation. A digital Class A station's "authorized service area" is defined as the area within its protected contour (described by 73.6010(c)) as determined using the authorized facility.

(d) *Class A DTS Protected Area.* The protected area for each DTS transmitter is determined based on the F(50,90) field strength given in 73.6010(c), calculated in accordance with 73.625(b). The combined protected area of a Class A DTS station is the logical union of the protected areas of all DTS transmitters, that falls within the station's authorized service area as defined in 73.6023(c).

(e) *Class A DTS Limiting Contour.* The DTS limiting area for each DTS transmitter is determined using the field strength from 73.6010(c) and the F(50,50) curves.

(f) *Applications for Class A DTS.* An application proposing use of DTS will not be accepted for filing unless it meets all of the following conditions:

- (1) The combined protected area covers all of the applicant's authorized service area;
- (2) Each DTS transmitter's Class A DTS limiting contour falls within the authorized facility's Class A DTS limiting contour;
- (3) Each DTS transmitter's protected area is contiguous with at least one other DTS transmitter's protected area;
- (4) The "combined field strength" of all DTS transmitters in a network does not cause interference to another station in excess of the criteria specified in sections 73.6017, 73.6018, 73.6019, and 73.6020. The combined field strength at a given location is determined by a "root-sum-square" calculation, in which the combined field strength is equal to the square root of the sum of the squared field strengths from each transmitter in the DTS network at that location;
- (5) Each DTS transmitter must be located within the station's authorized service area.

(g) All transmitters operating under a single Class A DTS license must follow the same digital broadcast television transmission standard.

4. In 73.6010, add new paragraph (e) to read as follows:

§ 73.6010. Class A TV Station Protected Contour

(e) *Class A DTS Protection.* A digital Class A DTS station will be protected from interference within its Class A DTS protected area as defined by 73.6023(d).

5. Add § 74.720 to subpart E to read as follows:

§ 74.720 Digital Low Power TV Distributed Transmission Systems.

(a) A digital low power TV or TV translator (LPTV) station may be authorized to operate multiple synchronized transmitters on its assigned channel to provide service consistent with the requirements of this section. Such operation is called a distributed transmission system (DTS). Except as expressly provided in this section, LPTV stations operating a DTS facility must comply with all rules applicable to LPTV single-transmitter stations.

(b) For purposes of compliance with this section, a digital LPTV station's "authorized facility" is the facility authorized for the station in a license or construction permit for non-DTS, single-transmitter-location operation. A digital LPTV station's "authorized service area" is defined as the area within its protected contour (described by 74.792) as determined using the authorized facility.

(c) *LPTV DTS Protected Area.* The protected area for each DTS transmitter is determined based on the F(50,90) field strength given in 74.792), calculated in accordance with 73.625(b). The combined protected area of an LPTV DTS station is the logical union of the protected areas of all DTS transmitters, that falls within the station's authorized service area as defined in 74.720(b).

(d) *LPTV Limiting Contour.* The DTS limiting area for each DTS transmitter is determined using the field strength from 74.792 and the F(50,50) curves.

(e) *Applications for LPTV DTS.* An application proposing use of DTS will not be accepted for filing unless it meets all of the following conditions:

- (1) The combined protected area covers all of the applicant's authorized service area;
- (2) Each DTS transmitter's LPTV DTS limiting contour falls within the authorized facility's LPTV DTS limiting contour;
- (3) Each DTS transmitter's protected area is contiguous with at least one other DTS transmitter's protected area;
- (4) The "combined field strength" of all DTS transmitters in a network does not cause interference to another station in excess of the criteria specified in section 74.793. The combined field strength at a given location is determined by a "root-sum-square" calculation, in which the combined field strength is equal to the square root of the sum of the squared field strengths from each transmitter in the DTS network at that location;

(5) Each DTS transmitter must be located within the station's authorized service area.

(f) All transmitters operating under a single LPTV DTS license must follow the same digital broadcast television transmission standard.

APPENDIX B

Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the Notice of Proposed Rulemaking (NPRM) in this proceeding.² The Federal Communications Commission (Commission) sought written public comment on the proposals in the NPRM, including comment on the IRFA. The Commission received no comments on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.³

A. Need for, and Objectives of, the Report and Order

2. This Order adopts a technical modification to the Commission's rules governing the use of a distributed transmission system (DTS), or single frequency network (SFN), by a broadcast television station. Specifically, the Order replaces the current restriction that prohibits DTS signals from spilling over beyond a station's authorized service area by more than a "minimal amount"⁴ with a clearer, service-based approach that allows broadcasters greater flexibility in locating DTS transmitters, so long as, for UHF stations, the 41 dBu F(50,50) contour for each DTS transmitter does not exceed the reference station's 41 dBu F(50,50) contour.⁵ Consistent with the current approach, DTS transmissions will not be entitled to interference protection beyond a station's authorized service area. The decision to replace the current, subjective spillover standard with a bright-line rule that both expands and clarifies the permissible range of spillover will not only promote DTS use by facilitating more efficient and more economical siting of DTS transmitters, but it also will establish a clearly defined limit that will promote regulatory certainty. Consistent with the goal of addressing technical issues that may impede the adoption of DTS technology,⁶ the Order concludes that modestly easing limitations on DTS transmitters and providing additional clarity in our rules can help unlock the potential of DTS at this crucial time when many stations are considering migrating to the next generation broadcast television standard (ATSC 3.0).⁷ As the record in this proceeding demonstrates, affording broadcasters greater flexibility in the placement of DTS transmitters can allow them to enhance signal capabilities and fill coverage gaps, improve indoor and mobile reception, and increase spectrum efficiency by reducing the need for television translator stations operating on separate channels.⁸

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

3. There were no comments to the IRFA filed.

¹ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996). The SBREFA was enacted as Title II of the Contract With America Advancement Act of 1996 (CWAAA).

² *Rules Governing the Use of Distributed Transmission System Technologies, Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard*, MB Docket No. 20-74, GN Docket No. 16-142, Notice of Proposed Rulemaking, 35 FCC Rcd 3330, 3353-61 (2020) (NPRM).

³ See 5 U.S.C. § 604.

⁴ See 47 CFR § 73.626(f)(2).

⁵ A 41 dBu F(50,50) contour refers to a boundary at which a signal is predicted to exceed 41 dBu at 50% of locations 50% of the time. We provide corresponding dBu values for F(50,50) limiting contours for Low and High VHF stations in the revised Table of Distances included in Appendix A of this Report and Order (Order). Those values are 28 dBu for Low VHF and 36 dBu for High VHF.

⁶ NPRM, 35 FCC Rcd at 3330-31, para. 1.

⁷ *Id.* at 3331, para. 2.

⁸ See *id.* at 3330-32, paras. 1, 4.

C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration

4. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.⁹ The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

D. Description and Estimate of the Number of Small Entities to Which the Rules Apply

5. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.¹⁰ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹¹ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.¹² A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.¹³

6. *Television Broadcasting.* The rule changes adopted would apply to television broadcast licensees and potential licensees of television stations using DTS. This Economic Census category “comprises establishments primarily engaged in broadcasting images together with sound.”¹⁴ These establishments operate television broadcast studios and facilities for the programming and transmission of programs to the public.¹⁵ These establishments also produce or transmit visual programming to affiliated broadcast television stations, which in turn broadcast the programs to the public on a predetermined schedule. Programming may originate in their own studio, from an affiliated network, or from external sources. The SBA has created the following small business size standard for such businesses: those having \$41.5 million or less in annual receipts.¹⁶ The 2012 Economic Census reports that 751 firms in this category operated in that year. Of this number, 656 had annual receipts of less than \$25 million.¹⁷ Based on this data we therefore estimate that the majority of commercial television broadcasters are small entities under the applicable SBA size standard.

⁹ 5 U.S.C. § 604(a)(3).

¹⁰ 5 U.S.C. § 603(b)(3).

¹¹ *Id.* § 601(6).

¹² *Id.* § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.” *Id.* § 601(3).

¹³ *Id.* § 632. Application of the statutory criteria of dominance in its field of operation and independence are sometimes difficult to apply in the context of broadcast television. Accordingly, the Commission’s statistical account of television stations may be over-inclusive.

¹⁴ 13 CFR § 121.201 (2012), NAICS Code 515120.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ U.S. Census Bureau, Table No. EC1251SSSZ4, *Information: Subject Series - Establishment and Firm Size: Receipts Size of Firms for the United States: 2012* (Jan. 8, 2016), https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2012_US_51SSSZ4&prodType=table.

7. Additionally, the Commission has estimated the number of licensed commercial television stations to be 1,368.¹⁸ Of this total, 1,174 stations (or 85.8%) had revenues of \$41.5 million or less, according to Commission staff review of the BIA Kelsey Inc. Media Access Pro Television Database (BIA) based on 2019 revenue data, and therefore these licensees qualify as small entities under the SBA definition. In addition, the Commission estimates the number of licensed noncommercial educational (NCE) television stations to be 390.¹⁹ The Commission does not compile and does not have access to information on the revenue of NCE stations that would permit it to determine how many such stations would qualify as small entities.

8. We note, however, that in assessing whether a business concern qualifies as “small” under the above definition, business (control) affiliations²⁰ must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. In addition, another element of the definition of “small business” requires that an entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television broadcast station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply does not exclude any television station from the definition of a small business on this basis and is therefore possibly over-inclusive.

9. *Class A, LPTV, and TV translator stations.* The rule changes adopted would apply to and/or impact licensees and potential licensees of Class A stations, LPTV stations, and TV translator stations, as well as to potential licensees in these television services. The same SBA definition that applies to television broadcast licensees would apply to these stations. As noted above, the SBA defines such businesses as a small business if they have \$41.5 million or less in annual receipts.²¹

10. There are 386 Class A stations.²² Given the nature of these services, the Commission presumes that all of these stations qualify as small entities under the applicable SBA size standard. In addition, there are 1,860 LPTV stations and 3,543 TV translator stations.²³ Given the nature of these services as secondary and in some cases purely a “fill-in” service, we will presume that all of these entities qualify as small entities under the above SBA small business size standard. We note, however, that under the SBA’s definition, revenue of affiliates that are not LPTV stations should be aggregated with the LPTV station revenues in determining whether a concern is small. Our estimate may thus overstate the number of small entities since the revenue figure on which it is based does not include or aggregate revenues from non-LPTV affiliated companies. We do not have data on revenues of TV translator or TV booster stations, but virtually all of these entities are also likely to have revenues of less than \$41.5 million and thus may be categorized as small, except to the extent that revenues of affiliated non-translator or booster entities should be considered.

E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

11. In this section, we identify the reporting, recordkeeping, and other compliance requirements imposed by the Order and consider whether small entities are affected disproportionately by

¹⁸ Press Release, FCC, Broadcast Station Totals as of September 30, 2020 (MB Oct. 2, 2020) (Broadcast Station Totals), <https://docs.fcc.gov/public/attachments/DOC-367270A1.pdf>.

¹⁹ Broadcast Station Totals.

²⁰ “[Business concerns] are affiliates of each other when one concern controls or has the power to control the other or a third party or parties controls or has the power to control both.” 13 CFR § 21.103(a)(1).

²¹ 13 CFR § 121.201 (2012), NAICS Code 515120.

²² Broadcast Station Totals.

²³ *Id.*

any such requirements. As discussed above, this Order relaxes the current restriction that prohibits DTS signals from spilling over beyond a station's authorized service area by more than a "minimal amount."²⁴ Specifically, the Order adopts a service-based approach that allows broadcasters to extend their DTS transmissions out to their 41 dBu F(50,50) contour. This rule change replaces the imprecise "minimal amount" standard with a clearly defined limit that will promote regulatory certainty. In so doing, we note that the use of DTS is at the discretion of the broadcast licensee. Thus, the Order does not impose any new mandatory reporting, recordkeeping, or compliance requirements for small entities, unless such entities, i.e., licensees, choose to use DTS. The Order therefore will not impose additional obligations or expenditure of resources on small businesses. However, we note that the adoption of the proposed rules may require modification of current requirements and processes for entities that choose to use DTS, such as modification of FCC forms, including, but not limited to, Schedules A and B of FCC Form 2100.²⁵ The Order delegates to the Media Bureau the authority to update FCC forms to conform with the rule changes adopted therein.

F. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered

12. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.²⁶

13. The premise of the rules is to facilitate DTS deployment by TV broadcasters, large and small alike, and thereby benefit their viewers. Among other benefits, easing limitations on DTS transmitters will help unlock the potential of DTS to extend service throughout a station's coverage area, to improve indoor and mobile reception, and to increase spectrum efficiency by reducing the need for television translators using separate channels.

14. In this proceeding, the Commission has three chief alternatives available for the DTS rule for full power stations—retaining the rule in its existing form, modifying the rule as proposed in the Petition (proposed approach), or modifying the rule in a manner that avoids the technical omission in the Petition's proposed rule (bright-line rule). The Commission finds that the public interest and technical and marketplace realities support relaxing the DTS rule by enacting the bright-line rule. A further internal analysis of the NPRM proposal revealed that it does not account for the additive effect of DTS transmissions and thus underestimates its potential interference impact. The bright-line approach set forth below remedies that technical omission and provides broadcasters ample leeway to improve coverage, with less interference risk to other spectrum users. Further, the additional DTS flexibility it offers will facilitate the deployment of ATSC 3.0 and its many anticipated consumer benefits, such as enhanced over-the-air programming, mobile viewing capabilities, geo-targeting of emergency alerts, and advanced data services supported by broadband connectivity.²⁷

15. For low power stations, the Commission has two chief alternatives—retaining the requirement that these stations must apply for DTS facilities on an experimental basis prior to operation

²⁴ See 47 CFR § 73.626(f)(2).

²⁵ The FCC Forms are available via the Commission's website at <https://www.fcc.gov/licensing-databases/forms>.

²⁶ 5 U.S.C. § 603(c)(1)-(c)(4).

²⁷ See *Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard*, GN Docket No. 16-142, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 9930, 9931, 9933-34, paras. 1, 4 (2017).

or eliminating the requirement. In order to allow low power stations to pursue DTS operations in a manner similar to full power stations, the Order eliminates the requirement and adopts a rule with a contour-based limit defining acceptable DTS spillover, taking into account the technical differences between full power and low power services. Specifically, the Order will permit low power stations to employ DTS facilities so long as such facilities meet the following conditions: first, DTS transmitters and their resulting contours must be located within the authorized F(50,90) contour for the station, and second, the F(50,50) contour of each DTS must be contained within the F(50,50) contour for the station's authorized service area (as opposed to an authorized service area drawn according to a Table of Distances).

G. Report to Congress

16. The Commission will send a copy of this Order, including this FRFA, in a report to Congress and the Government Accountability Office pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996.²⁸ In addition, the Commission will send a copy of the Order, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of the Order and FRFA (or summaries thereof) will also be published in the *Federal Register*.²⁹

H. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rule

17. None.

²⁸ See 5 U.S.C. § 801(a)(1)(A).

²⁹ See *id.* § 604(b).

**STATEMENT OF
CHAIRMAN AJIT PAI**

Re: *Rules Governing the Use of Distributed Transmission System Technologies*, MB Docket No. 20-74; *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142.

Good broadcast reception can sometimes be hard to come by, from harder-to-reach rural areas to densely populated urban ones. Today’s order seeks to change that by giving broadcasters greater flexibility regarding the use of a Distributed Transmission System, or DTS, which allows broadcast television stations to fill-in service gaps while economizing TV spectrum. This unlocks the benefits of DTS just when broadcasters are migrating to the next generation broadcast television standard—ATSC 3.0—which promises an exciting array of entertainment and information possibilities for consumers.

Typically, a broadcast television station operates by transmitting its signal from a single site located in the center of its authorized service area. The signals are strongest close to the transmission site and get progressively weaker the farther they travel, especially if they encounter certain non-uniform terrain. The transition to digital television made it possible for broadcasters to have the option to cover the areas that receive a weaker signal by using a DTS network, which sets up multiple, lower power transmission sites that fill in service gaps and use the same radiofrequency.

However, DTS technology has not been widely deployed. This is in part because our rules permit a DTS transmitter to extend outside of a station’s service area by a “minimal amount.” This standard is imprecise, and fails to provide clear rules for stakeholders, be they broadcasters or users of TV white spaces. Today’s order sets a clear, service-based standard that defines the spillover allowance and reiterates that DTS transmissions are not entitled to interference protection if they reach beyond a station’s authorized service area. The proposal will allow broadcasters more flexibility in placing their DTS transmitters, especially at the periphery of their authorized service areas. The new bright-line rule provides regulatory certainty for both broadcasters and for users of TV white spaces.

To ensure that broadcasters prioritize reception reliability for their local viewers, the Commission has decided to set the boundaries for a broadcaster’s authorized service area at the hypothetical maximum area that it could serve with a single, central transmitter. Any DTS transmitters must stay within the broadcaster’s authorized or hypothetical maximum area and must be necessary to ensure better local transmission—not intended to extend coverage beyond the authorized area. The Commission finds that this framework will ensure that broadcasters provide programming that is responsive to the needs and interests of their communities of license. Above all, consumers will see the benefits through improved service for hard-to-reach viewers, as well as improved indoor and mobile reception.

Navigating such a technically complex proceeding was certainly not easy, and I’m grateful to the staff that put in long hours to get it done: from the Media Bureau, Evan Baranoff, Ty Bream, Michelle Carey, Mark Colombo, John Gabrysch, Kevin Harding, Brendan Holland, Jamile Kadre, Barbara Kreisman, Evan Morris, Julie Salovaara and Sarah Whitesell; from the Office of Engineering and Technology, Chrysanthos Chrysanthou, Martin Doczkat, Gulmira Mustapaeva, Barbara Pavon, Ron Repasi, and Sean Yun; from the Office of Economics and Analytics, Eugene Kiselev and Andy Wise; from the Office of Communications Business Opportunities, Belford Lawson; and from the Office of General Counsel, Michael Carlson, David Konczal and Bill Richardson.

**STATEMENT OF
COMMISSIONER BRENDAN CARR**

Re: *Rules Governing the Use of Distributed Transmission System Technologies*, MB Docket No. 20-74; *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142.

Whether you are talking about Broadcast Internet or NextGenTV, ATSC 3.0 is the future of broadcast television. With this item, the FCC brings that future another step closer to reality. We do so by making it more efficient and economical for broadcasters—including Class A, LPTV, and television translator stations—to use distributed transmission systems (or DTS), which will improve signal strength within local markets, allow for geo-targeted programming and services, and speed the adoption of ATSC 3.0. Thanks to this dynamic new technology, broadcasters will have a seat at the table in the next-gen wireless ecosystem, where broadcast spectrum can leverage its inherent strengths to compete in this market.

Indeed, increased DTS deployment will result in greater cellularization of the broadcast signal. Outdated single-stick antennas will be replaced with multi-node systems that enhance coverage in a station’s authorized service area while limiting interference outside the market. And early transitions suggest that broadcasters are looking to deploy more nodes throughout a market, which will greatly enhance their ability to provide next-gen services. As the number of nodes increases, the likelihood of interference outside the market will decrease. Our action today will help facilitate this advanced architecture, and I want to credit the Media Bureau staff for identifying a path forward from the NPRM that will promote DTS deployment while providing greater protection for other spectrum users, such as LPTV stations and white space devices. The TV band is not a zero-sum game, and we’ve left plenty of space for multiple services to flourish. Now it’s time to build.

When we authorized broadcasters to begin a voluntary transition to ATSC 3.0 in 2017, not everyone was on board. But I think it’s clear that the approach we’ve taken is working. Broadcasters are making great progress in their NextGenTV offerings—even during the pandemic—and many are already exploring ways to support advanced data services. And as I learned first-hand when I helped lead the FCC’s efforts to promote Broadcast Internet offerings, the industry is eager to build upon these early successes. So as we move forward, I hope the FCC will continue to support the deployment of ATSC 3.0 and the consumer benefits and innovations it will enable.

**STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL,
APPROVING IN PART, DISSENTING IN PART**

Re: *Rules Governing the Use of Distributed Transmission System Technologies*, MB Docket No. 20-74; *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142.

The way we get news and information is changing. But when we are looking for the facts about what is happening in our communities, so many of us turn to our local broadcasters. During this pandemic they have provided an especially important public service, keeping us informed about public safety measures, school closures, and healthcare initiatives. They have had to innovate to meet the needs of their viewers, consistent with the public interest. That same spirit of innovation informs our work in this decision. We update Federal Communications Commission rules for distributed transmission systems, broadly allowing for expanded use of these systems to help extend the reach of broadcast signals. While I appreciate the effort to modernize our policies, I would have preferred a more fine-tuned approach that would have allowed us to better gauge the effects of these systems on other services that use these airwaves, including low-power television stations and broadband devices using white spaces. By not choosing to do so here the agency could be needlessly restricting new broadband services even where there are no broadcast signals to protect. This strikes me as perverse. In addition, we create ambiguities about what level of protection different signals may be entitled to under the new rules, which could harm investment in new services going forward. So along with Commissioner Starks I proposed an alternative approach to unlock the potential of distributed transmission systems by using expedited waivers. Regrettably, that request was denied so I choose to dissent in part.

**STATEMENT OF
COMMISSIONER GEOFFREY STARKS,
APPROVING IN PART, DISSENTING IN PART**

Re: *Rules Governing the Use of Distributed Transmission System Technologies*, MB Docket No. 20-74; *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142.

I continue to support moving forward to clarify rules of the road that will enable broadcasters to migrate to the next generation broadcast television standard (ATSC 3.0). But we need to proceed with caution to avoid potentially harmful effects to other Commission priorities, including our efforts to authorize and encourage other services in the TV Band such as unlicensed white space operations. For the millions of Americans who live in areas without any form of broadband service, the use of white spaces as a broadband service option is among the most promising. This Commission has worked long and hard promoting policies to enable the white space community and broadcasters to co-exist in the same spectrum while minimizing the risk of harmful interference from either side. Today’s decision threatens to disrupt that careful balance by moving too quickly to adopt expanded signal spillover limits for full power television stations before it is known whether they will be compatible with other operations in the TV band.

Although the majority asserts that the revised spillover allowances pose less of an interference risk than what was proposed by Petitioners, several stakeholders believe that any increase in signal spillover allowance, without additional safeguards, will impede the significant progress made to facilitate white spaces and other TV band operations. I therefore proposed, with support from Commissioner Rosenworcel, a more measured solution that would have streamlined the current approach under which a licensee would need to seek a waiver for signal spillover that exceeds a “minimal amount.” This proposal would have provided the predictability and flexibility that broadcasters have asked for but it was rejected, which means that licensees will no longer have to demonstrate that DTS operations extending more than a minimal amount beyond their authorized service areas are in the public interest. For that reason, I dissent in part. I thank the staff for their work on this technically complex proceeding.